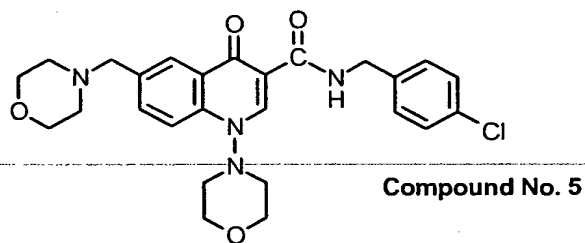
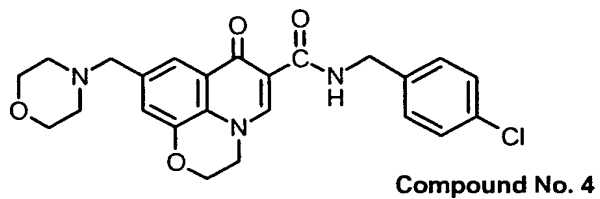
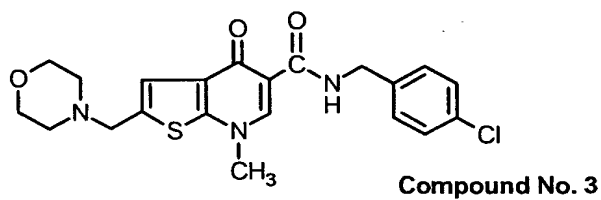
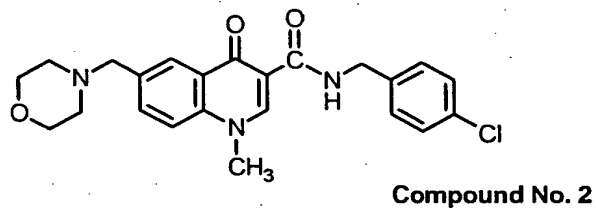
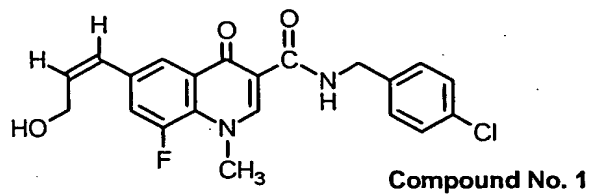
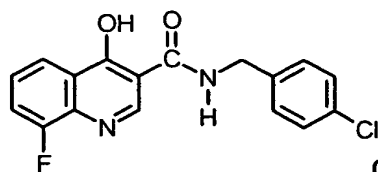


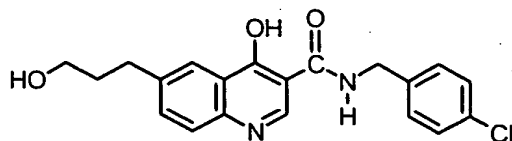
5 **Figure 1A 4-HQ, 4-oxo-DHQ and 4-oxo-DHTP antiviral compounds**



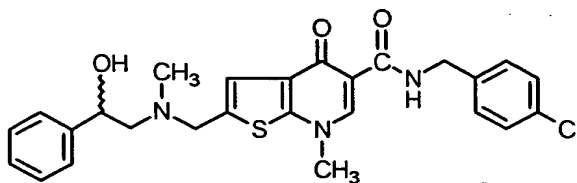
5 **Figure 1B** **4-HQ, 4-oxo-DHQ and 4-oxo-DHTP antiviral compounds**



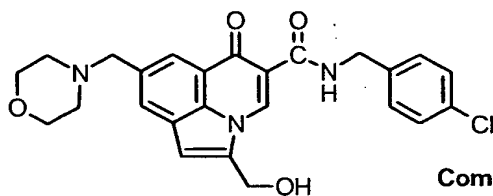
**Compound No. 6**



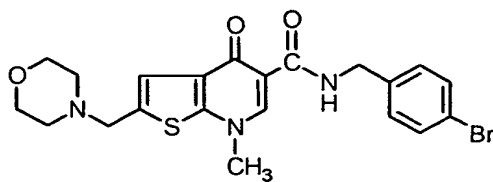
**Compound No. 7**



**Compound No. 8**

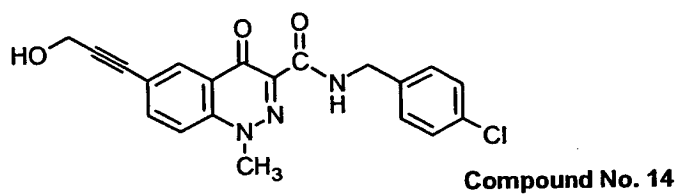
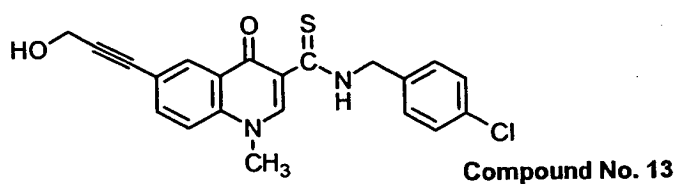
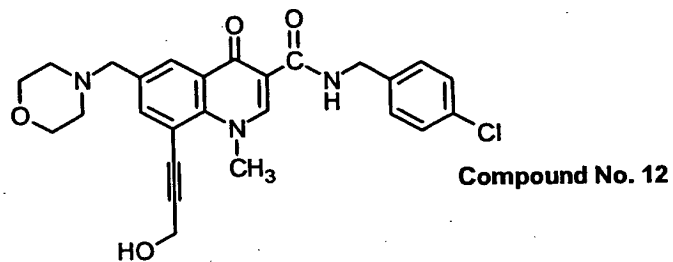
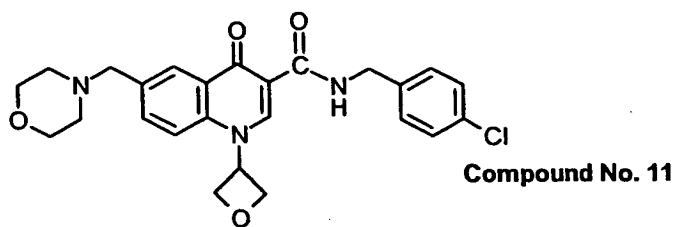


**Compound No. 9**

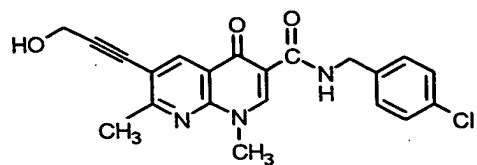


**Compound No. 10**

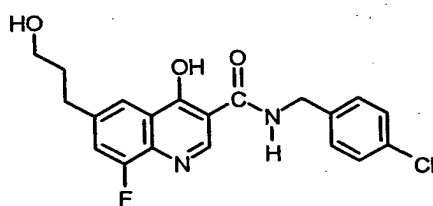
5 **Figure 1C** 4-HQ, 4-oxo-DHQ and 4-oxo-DHTP antiviral compounds



5 **Figure 1D** 4-HQ, 4-oxo-DHQ and 4-oxo-DHTP antiviral compounds



**Compound No.15**



**Compound 17**

**Figure 4A Comparison of Wild type HSV-1 and HSV-2 DNA Polymerases Amino Acid Sequences Alligned by Amino Acid Homology\***

5	HSV2-MS	MFCAAGGPTS	PGGKSAARAA	SGFFAPHNPR	GATQTAPPPC	RRQNFYNPHL	-50
	HSV2-186	MFCAAGGPAS	PGGKSAARAA	SGFFAPHNPR	GATQTAPPPC	RRQNFYNPHL	-50
	HSV1-Kos	MFSGGGGPLS	PGGKSAARAA	SGFFAPAGPR	GAGR.GPPPC	LRQNFYNPYL	-49
	HSV1-Patton	MFSGGGGPLS	PGGKSAARAA	SGFFAPAGPR	GAGR.GPPPC	LRQNFYNPYL	-49
	HSV1-DJL	MFSGGGGPLS	PGGKSAARAA	SGFFAPAGPR	GAGR.GPPPC	LRQNFYNPYL	-49
	HSV1-F	MFSGGGGPLS	PGGKSAARAA	SGFFAPAGPR	GAGR.GPPPC	LRQNFYNPYL	-49
10	HSV2-MS	AQTGTQPKAP	GPAQRHTYYS	ECDEFRIAP	RSLDEDAPAE	QRTGVHDGRL	-100
	HSV2-186	AQTGTQPKAP	GPAQRHTYYS	ECDEFRIAP	RSLDEDAPAE	QRTGVHDGRL	-100
	HSV1-Kos	APVGTQQKPT	GPTQRHTYYS	ECDEFRIAP	RVLDEDAPPE	KRAGVHDGHL	-99
	HSV1-Patton	APVGTQQKPT	GPTQRHTYYS	ECDEFRIAP	RVLDEDAPPE	KRAGVHDGHL	-99
	HSV1-DJL	APVGTQQKPT	GPTQRHTYYS	ECDEFRIAP	RVLDEDAPPE	KRAGVHDGHL	-99
15	HSV1-F	APVGTQQKPT	GPTQRHTYYS	ECDEFRIAP	RVLDEDAPPE	KRAGVHDGHL	-99
20	HSV2-MS	RRAPKVYCGG	DERDVLRVGP	EGFWPRRLRL	WGGADHAPKG	FDPTVTVFHV	-150
	HSV2-186	RRAPKVYCGG	DERDVLRVGP	EGFWPRRLRL	WGGADHAPEG	FDPTVTVFHV	-150
	HSV-Kos	KRAPKVYCGG	DERDVLRVGS	GGFWPRRSRL	WGGVDHAPAG	FNPTVTVFHV	-149
	HSV1-Patton	KRAPKVYCGG	DERDVLRVGS	GGFWPRRSRL	WGGVDHAPAG	FNPTVTVFHV	-149
	HSV1-DJL	KRAPKVYCGG	DERDVLRVGS	GGFWPRRSRL	WGGVDHAPAG	FNPTVTVFHV	-149
	HSV1-F	KRAPKVYCGG	DERDVLRVGS	GGFWPRRSRL	WGGVDHAPAG	FNPTVTVFHV	-149
25	HSV2-MS	YDILEHVEHA	YSMRAAQLHE	RFMDAITPAG	TVITLLGLTP	EGHRVAVHVY	-200
	HSV2-186	YDILEHVEHA	YSMRAAQLHE	RFMDAITPAG	TVITLLGLTP	EGHRVAVHVY	-200
	HSV-Kos	YDILENVEHA	YGMRAAQFHA	RFMDAITPTG	TVITLLGLTP	EGHRVAVHVY	-199
	HSV1-Patton	YDILENVEHA	YGMRAAQFHA	RFMDAITPTG	TVITLLGLTP	EGHRVAVHVY	-199
	HSV1-DJL	YDILENVEHA	YGMRAAQFHA	RFMDAITPTG	TVITLLGLTP	EGHRVAVHVY	-199
	HSV1-F	YDILENVEHA	YGMRAAQFHA	RFMDAITPTG	TVITLLGLTP	EGHRVAVHVY	-199
30	HSV2-MS	GTRQYFYMNK	AEVDRHLQCR	APRDLCELA	AALRESPGAS	FRGISADHFE	-250
	HSV2-186	GTRQYFYMNK	AEVDRHLQCR	APRDLCELA	AALRESPGAS	FRGISADHFE	-250
	HSV-Kos	GTRQYFYMNK	EEVDRHLQCR	APRDLCEMA	AALRESPGAS	FRGISADHFE	-249
	HSV1-Patton	GTRQYFYMNK	EEVDRHLQCR	APRDLCEMA	AALRESPGAS	FRGISADHFE	-249
	HSV1-DJL	GTRQYFYMNK	EEVDRHLQCR	APRDLCEMA	AALRESPGAS	FRGISADHFE	-249
35	HSV1-F	GTRQYFYMNK	EEVDRHLQCR	APRDLCEMA	AALRESPGAS	FRGISADHFE	-249
40	HSV2-MS	AEVVERADVY	YYETRPTLYY	RVFVRSGRAL	AYLCDNF CPA	IRKYEGGVDA	-300
	HSV2-186	AEVVERADVY	YYETRPTLYY	RVFVRSGRAL	AYLCDNF CPA	IRKYEGGVDA	-300
	HSV-Kos	AEVVERTDVY	YYETRPALFY	RVYVRSGRVL	SYLCDNF CPA	IKKYEGGVDA	-299
	HSV1-Patton	AEVVERTDVY	YYETRPALFY	RVYVRSGRVL	SYLCDNF CPA	IKKYEGGVDA	-299
	HSV1-DJL	AEVVERTDVY	YYETRPALFY	RVYVRSGRVL	SYLCDNF CPA	IKKYEGGVDA	-299
	HSV1-F	AEVVERTDVY	YYETRPALFY	RVYVRSGRVL	SYLCDNF CPA	IKKYEGGVDA	-299
45	HSV2-MS	TTRFILDNPG	FVTFGWYRLK	PGRGNAPAQP	RPPTAFGTSS	DVEFNCTADN	-350
	HSV2-186	TTRFILDNPG	FVTFGWYRLK	PGRGNAPAQP	RPPTAFGTSS	DVEFNCTADN	-350
	HSV-Kos	TTRFILDNPG	FVTFGWYRLK	PGRNNTLAQP	RAPMAFGTSS	DVEFNCTADN	-349
	HSV1-Patton	TTRFILDNPG	FVTFGWYRLK	PGRNNTLAQP	RAPMAFGTSS	DVEFNCTADN	-349
	HSV1-DJL	TTRFILDNPG	FVTFGWYRLK	PGRNNTLAQP	RAPMAFGTSS	DVEFNCTADN	-349
50	HSV1-F	TTRFILDNPG	FVTFGWYRLK	PGRNNTLAQP	RAPMAFGTSS	DVEFNCTADN	-349
55	HSV2-MS	LAVEGAMCDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAERPED	LVIQISCLLY	-400
	HSV2-186	LAVEGAMCDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAERPED	LVIQISCLLY	-400
	HSV-Kos	LAIEGGMSDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAGHPED	LVIQISCLLY	-399
	HSV1-Patton	LAIEGGMSDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAGHPED	LVIQISCLLY	-399
	HSV1-DJL	LAIEGGMSDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAGHPED	LVIQISCLLY	-399
	HSV1-F	LAIEGGMSDL	PAYKLMCFDI	ECKAGGEDEL	AFPVAGHPED	LVIQISCLLY	-399
	HSV2-MS	DLSTTALEHI	LLFSLGSCDL	PESHLSDLAS	RGLPAPVVLE	FDSEFEMLLA	-450

**Figure 4B Comparison of Wild type HSV-1 and HSV-2 DNA Polymerases Amino Acid Sequences Aligned by Amino Acid Homology\***

5	HSV2-186	DLSTTALEHI	LLFSLGSCDL	PESHLSDLAS	RGLPAPVVLE	FDSEFEMLLA	-450
	HSV-Kos	DLSTTALEHV	LLFSLGSCDL	PESHLNELAA	RGLPTPVVLE	FDSEFEMLLA	-449
	HSV1-Patton	DLSTTALEHV	LLFSLGSCDL	PESHLNELAA	RGLPTPVVLE	FDSEFEMLLA	-449
	HSV1-DJL	DLSTTALEHV	LLFSLGSCDL	PESHLNELAA	RGLPTPVVLE	FDSEFEMLLA	-449
	HSV1-F	DLSTTALEHV	LLFSLGSCDL	PESHLNELAA	RGLPTPVVLE	FDSEFEMLLA	-449
10	HSV2-MS	FMTFVKQYGP	EFVTGYNIIN	FDWPFVLTKL	TEIYKVPLDG	YGRMNGRGVF	-500
	HSV2-186	FMTFVKQYGP	EFVTGYNIIN	FDWPFVLTKL	TEIYKVPLDG	YGRMNGRGVF	-500
	HSV-Kos	FMTLVKQYGP	EFVTGYNIIN	FDWPFLLAKL	TDIYKVPLDG	YGRMNGRGVF	-499
	HSV1-Patton	FMTLVKQYGP	EFVTGYNIIN	FDWPFLLAKL	TDIYKVPLDG	YGRMNGRGVF	-499
	HSV1-DJL	FMTLVKQYGP	EFVTGYNIIN	FDWPFLLAKL	TDIYKVPLDG	YGRMNGRGVF	-499
15	HSV1-F	FMTLVKQYGP	EFVTGYNIIN	FDWPFLLAKL	TDIYKVPLDG	YGRMNGRGVF	-499
20	HSV2-MS	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKVKLSSYK	LNAVAEAVLK	-550
	HSV2-186	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKVKLSSYK	LNAVAEAVLK	-550
	HSV-Kos	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKIKLSSYK	LNAVAEAVLK	-549
	HSV1-Patton	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKIKLSSYK	LNAVAEAVLK	-549
	HSV1-DJL	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKIKLSSYK	LNAVAEAVLK	-549
	HSV1-F	RVWDIGQSHF	QKRSKIKVNG	MVNIDMYGII	TDKIKLSSYK	LNAVAEAVLK	-549
25	HSV2-MS	DKKKDLSYRD	IPAYYASGPA	QRGVIGEYCV	QDSLLVGQLF	FKFLPHLELS	-600
	HSV2-186	DKKKDLSYRD	IPAYYASGPA	QRGVIGEYCV	QDSLLVGQLF	FKFLPHLELS	-600
	HSV-Kos	DKKKDLSYRD	IPAYYAAGPA	QRGVIGEYCI	QDSLLVGQLF	FKFLPHLELS	-599
	HSV1-Patton	DKKKDLSYRD	IPAYYAAGPA	QRGVIGEYCI	QDSLLVGQLF	FKFLPHLELS	-599
	HSV1-DJL	DKKKDLSYRD	IPTYAAGPA	QRGVIGEYCI	QDSLLVGQLF	FKFLPHLELS	-599
	HSV1-F	DKKKDLSYRD	IPAYYAAGPA	QRGVIGEYCI	QDSLLVGQLF	FKFLPHLELS	-599
30	HSV2-MS	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	GQKGFILPDT	QGRFRGLDKE	-650
	HSV2-186	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	GQKGFILPDT	QGRFRGLDKE	-650
	HSV-Kos	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	DQKGFILPDT	QGRFRGAGGE	-649
	HSV1-Patton	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	DQKGFILPDT	QGRFRGAGGE	-649
	HSV1-DJL	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	DQKGFILPDT	QGRFRGAGGE	-649
35	HSV1-F	AVARLAGINI	TRTIYDQQI	RVFTCLLRLA	DQKGFILPDT	QGRFRGGGGE	-649
40	HSV2-MS	APKRPAVPRG	EGERPGDGNG	DEDKDDDE..	DEDGDERE.E	VARETGGRHV	-697
	HSV2-186	APKRPAVPRG	EGERPGDGNG	DEDKDDDEDG	DEDGDERE.E	VARETGGRHV	-697
	HSV-Kos	APKRPAARE	DEERP.....	EEEGEDEDER	EEGGGEREPE	GARETAGRHV	-694
	HSV1-Patton	APKRPAARE	DEERP.....	EEEGEDEDER	EEGGGEREPE	GARETAGRHV	-694
	HSV1-DJL	APKRPAARE	DEERP.....	EEEGEDENER	EEGGGEREPE	GARETAGRHV	-694
	HSV1-F	APKRPAARE	DEERP.....	EEEGEDEDER	EEGGGEREPE	GARETAGRHV	-694
45	HSV2-MS	GYQGARVLD	TSGFHVDPV	VDFASLYPS	IIQAHNLCFS	TLSLRPEAVA	-747
	HSV2-186	GYQGARVLD	TSGFHVDPV	VDFASLYPS	IIQAHNLCFS	TLSLRPEAVA	-749
	HSV-Kos	GYQGARVLD	TSGFHVNPV	VDFASLYPS	IIQAHNLCFS	TLSLRADAVA	-744
	HSV1-Patton	GYQGARVLD	ISGFHVNPV	VDFASLYPS	IIQAHNLCFS	TLSLRADAVA	-744
	HSV1-DJL	GYQGARVLD	TSGFHVNPV	VDFASLYPS	IIQAHNLCFS	TLSLRADAVA	-744
50	HSV1-F	GYQGARVLD	TSGFHVNPV	VDFASLYPS	IIQAHNLCFS	TLSLRADAVA	-744
55	HSV2-MS	HLEADR DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-797
	HSV2-186	HLEADR DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-799
	HSV-Kos	HLEAGK DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-794
	HSV1-Patton	HLEAGK DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-794
	HSV1-DJL	HLEAGK DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-794
	HSV1-F	HLEAGK DYLE	IEVGGRRLFF	VKAHVRESLL	SILLRDWLAM	RKQIRSRIPQ	-794
60	HSV2-MS	STPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTIGREM	-847
	HSV2-186	SPPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTIGREM	-849
	HSV-Kos	SSPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTIGREM	-844

**Figure 4C Comparison of Wild type HSV-1 and HSV-2 DNA Polymerases Amino Acid Sequences Aligned by Amino Acid Homology\***

5	HSV1-Patton	SSPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTTIGREM	-844
	HSV1-DJL	SSPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTTIGREM	-844
	HSV1-F	SSPEEAVLLD	KQQAIAIKVVC	NSVYGFTGVQ	HGLLPCLHVA	ATVTTTIGREM	-844
10	HSV2-MS	LLATRAYVHA	RWAEFDQLLA	DFPEAAGMRA	PGPYSMRIIY	GDTSIFVLC	-897
	HSV2-186	LLATRAYVHA	RWAEFDQLLA	DFPEAAGMRA	PGPYSMRIIY	GDTSIFVLC	-899
	HSV-Kos	LLATREYVHA	RWAAFEQLLA	DFPEAADMRA	PGPYSMRIIY	GDTSIFVLC	-894
	HSV1-Patton	LLATREYVHA	RWAAFEQLLA	DFPEAADMRA	PGPYSMRIIY	GDTSIFVLC	-894
	HSV1-DJL	LLATREYVHA	RWAAFEQLLA	DFPEAADMRA	PGPYSMRIIY	GDTSIFVLC	-894
	HSV1-F	LLATREYVHA	RWAAFEQLLA	DFPEAADMRA	PGPYSMRIIY	GDTSIFVLC	-894
15	HSV2-MS	RGLTAAGLVA	MGDKMASHIS	RALFLPPIKL	ECEKTFTKLL	LIAKKKYIGV	-947
	HSV2-186	RGLTAAGLVA	MGDKMASHIS	RALFLPPIKL	ECEKTFTKLL	LIAKKKYIGV	-949
	HSV-Kos	RGLTAAGLTA	MGDKMASHIS	RALFLPPIKL	ECEKTFTKLL	LIAKKKYIGV	-944
	HSV1-Patton	RGLTAAGLTA	MGDKMASHIS	RALFLPPIKL	ECEKTFTKLL	LIAKKKYIGV	-944
	HSV1-DJL	RGLTAAGLTA	VGDKMASHIS	RALFLPPIKL	ECEKTFTKLL	LIAKKKYIGV	-944
	HSV1-F	RGLTAAGLTA	VGDKMASHIS	RALFLSPIKL	ECEKTFTKLL	LIAKKKYIGV	-944
25	HSV2-MS	ICGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-997
	HSV2-186	ICGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-999
	HSV-Kos	IYGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-994
	HSV1-Patton	IYGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-994
	HSV1-DJL	IYGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-994
	HSV1-F	IYGGKMLIKG	VDLVRKNNCA	FINRTSRALV	DLLFYDDTVS	GAAAALAERP	-994
30	HSV2-MS	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1047
	HSV2-186	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1049
	HSV-Kos	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1044
	HSV1-Patton	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1044
	HSV1-DJL	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1044
	HSV1-F	AEEWLARPLP	EGLQAFGAVL	VDAHRRITDP	ERDIQDFVLT	AELSRHPRAY	-1044
35	HSV2-MS	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1097
	HSV2-186	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1099
	HSV-Kos	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1094
	HSV1-Patton	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1094
	HSV1-DJL	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1094
	HSV1-F	TNKRLAHLTV	YYKLMARRAQ	VPSIKDRIPY	VIVAQTREVE	ETVARLAALR	-1094
45	HSV2-MS	ELDAAAPGDE	PAPPAALPSP	AKRPRETPSH	ADPPGGASKP	RKLLVSELAE	-1147
	HSV2-186	ELDAAAPGDE	PAPPAALPSP	AKRPRETPSH	ADPPGGASKP	RKLLVSELAE	-1149
	HSV-Kos	ELDAAAPGDE	PAPPAALPSP	AKRPRETPSH	ADPPGGASKP	RKLLVSELAE	-1144
	HSV1-Patton	ELDAAAPGDE	PAPPAALPSP	AKRPRETPSP	ADPPGGASKP	RKLLVSELAE	-1144
	HSV1-DJL	ELDAAAPGDE	PAPPAALPSP	AKRPRETPSP	ADPPGGASKP	RKLLVSELAE	-1144
	HSV1-F	ELDAAAPGDE	PAPPAALPSP	AKRPRETPLH	ADPPGGASKP	RKLLVSELAE	-1144
50	HSV2-MS	DPGYAARGV	PLNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1197
	HSV2-186	DPGYAARGV	PLNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1199
	HSV-Kos	DPAYAIAHGV	ALNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1194
	HSV1-Patton	DPAYAIAHGV	ALNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1194
	HSV1-DJL	DPAYAIAHGV	ALNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1194
	HSV1-F	DPAYAIAHGV	ALNTDYYFSH	LLGAACVTFK	ALFGNNAKIT	ESLLKRFIPE	-1194
60	HSV2-MS	TWHPPDDVAA	RLRAAGFGPA	GAGATAEETR	RMLHRAFDTL	A*	-1238
	HSV2-186	TWHPPDDVAA	RLRAAGFGPA	GAGATAEETR	RMLHRAFDTL	A*	-1240
	HSV-Kos	VWHPPDDVAA	RLRAAGFGAV	GAGATAEETR	RMLHRAFDTL	A*	-1235
	HSV1-Patton	VWHPPDDVTA	RLRAAGFGAV	GAGATAEETR	RMLHRAFDTL	A*	-1235
	HSV1-DJL	VWHPPDDVAA	RLRTAGFGAV	GAGATAEETR	RMLHRAFDTL	A*	-1235

**Figure 4D Comparison of Wild type HSV-1 and HSV-2 DNA Polymerases Amino Acid Sequences Alligned by Amino Acid Homology\***

5 HSV1-F VWHPDDVAA RLRAAGFGAV GAGATAEETR RMLHRAFDTL A\* -1235

\*Amino acid alignment demonstrates difference in amino acid's sequences.

\*The gaps "....." indicate missing amino acids relative to other stanins.

\*Wild HSV2-MS is listed as SEQ. ID NO 14.

10 \*Wild HSV2-186 is listed as SEQ. ID NO 15.

\*Wild HSV-Kos is listed as SEQ. ID NO 16.

\*Wild HSV1-Patton is listed as SEQ. ID NO 17.

\*Wild HSV1-DJL is listed as SEQ. ID NO 18.

\*Wild HSV1-F is listed as SEQ. ID NO 19.

15

20

25

30

35

40

45



5 **Figure 5A DNA and amino acid sequence list****SEQ. ID. NO. 1** DNA sequence of DNA polymerase gene for HSV2-MS-M1

1 ATGTTTGTG CCGCGGGCGG CCCGACTTCC CCCGGGGGGA AGTCGGCGGC  
 10 51 TCGGGCGGCG TCTGGGTTTT TTGCCCCCA CAACCCCGG GGAGCCACCC  
 101 AGACGGCACC GCCGCCTTGC CGCCGGCAGA ACTTCTACAA CCCCCACCTC  
 15 151 GCTCAGACCG GAACGCAGCC AAAGGCCCCC GGGCGGCTC AGCGCCATAC  
 201 GTACTACAGC GAGTGCGACG AATTTCGATT TATCGCCCCG CGTTCGCTGG  
 251 ACGAGGACGC CCCCGCGGAG CAGCGCACCG GGGTCCACGA CGGCCGCCTC  
 20 301 CGGCGCGCCC CTAAGGTGTA CTGCGGGGGG GACGAGCGCG ACGTCCTCCG  
 351 CGTGGGCCCG GAGGGCTTCT GGCCGCGTCG CTTGCGCCTG TGGGGCGGTG  
 25 401 CGGACCATGC CCCCAAGGGG TTCGACCCA CCGTCACCGT CTTCCACGTG  
 451 TACGACATCC TGGAGCACGT GGAACACGCG TACAGCATGC GCGCCGCCCA  
 501 GCTCCACGAG CGATTTATGG ACGCCATCAC GCCCGCCGGG ACGTCATCA  
 30 551 CGCTTCTGGG TCTGACCCCC GAAGGCCATC GCGTCGCCGT TCACGTCTAC  
 601 GGCACGCGGC AGTACTTTTA CATGAACAAG GCGGAGGTGG ATCGGCACCT  
 35 651 GCAGTGCCGT GCCCCGCGCG ATCTCTGCGA GCGCCTGGCG GCGGCCCTGC  
 701 GCGAGTCGCC GGGGGCGTCG TTCCGCGGCA TCTCCGCGGA CCACTTCGAG  
 751 GCGGAGGTGG TGGAGCGCGC CGACGTGTAC TATTACGAAA CGCGCCCGAC  
 40 801 CCTGTACTAC CGCGTCTTCG TCGAAGCGG GCGCGCGCTG GCCTACCTGT  
 851 GCGACAACTT TTGCCCCGCG ATCAGGAAGT ACGAGGGGGG CGTCGACGCC  
 45 901 ACCACCGGT TTATCCTGGA CAACCCGGGG TTTGTACCT TCGGCTGGTA  
 951 CCGCCTCAAG CCCGGCCGCG GGAACGCGCC GGCCCAACCG CGCCCCCGA  
 1001 CGGCGTTCGG AACCTCGAGC GACGTCGAGT TTAAGTGCAC GGCGGACAAC  
 50 1051 CTGGCCGTCG AGGGGGCCAT GTGTGACCTG CCGGCCTACA AGCTCATGTG  
 1101 CTTGATATC GAATGCAAGG CCGGGGGGGA GGACGAGCTG GCCTTTCGG  
 55 1151 TCGCGGAACG CCCGGAAGAC CTCGTCATCC AGATCTCCTG TCTGCTCTAC  
 1201 GACCTGTCCA CCACCGCCCT CGAGCACATC CTCCTGTTTT CGCTCGGATC

5 **Figure 5B DNA and amino acid sequence list**

1251 CTGCGACCTC CCCGAGTCCC ACCTCAGCGA TCTCGCCTCC AGGGGCCTGC  
 1301 CGGCCCCCGT CGTCCTGGAG TTTGACAGCG AATTCGAGAT GCTGCTGGCC  
 10 1351 TTCATGACCT TCGTCAAGCA GTACGGCCCC GAGTTCGTGA COGGGTACAA  
 1401 CATCATCAAC TTCGACTGGC CCTTCGTCTT GACCAAGCTG ACGGAGATCT  
 15 1451 ACAAGGTCCC GCTCGACGGG TACGGGCGCA TGAACGGCCG GGGTGTGTTC  
 1501 CGCGTGTGGG ACATCGGCCA GAGCCACTTT CAGAAGCGCA GCAAGATCAA  
 1551 GGTGAACGGG ATGGTGAACA TCGACATGTA CGGCATCATC ACCGACAAGG  
 20 1601 TCAAACCTCTC CAGCTACAAG CTGAACGCCG TCGCCGAGGC CGTCTTGAAG  
 1651 GACAAGAAGA AGGATCTGAG CTACCGCGAC ATCCCCGCCT ACTACGCCTC  
 25 1701 CGGGCCCCGG CAGCGCGGGG TGATCGGCGA GTATTGTGTG CAGGACTCGC  
 1751 TGCTGGTCGG GCAGCTGTTC TTCAAGTTTC TGCCGCACCT GGAGCTTCC  
 1801 GCCGTGCGGC GCCTGGCGGG CATCAACATC ACCCGCACCA TCTACGACGG  
 30 1851 CCAGCAGATC CGCGTCTTCA CGTGCTCTCT GCGCCTTGCG GGCCAGAAGG  
 1901 GCTTCATCCT GCGGACACC CAGGGGCGGT TTCGGGGCCT CGACAAGGAG  
 35 1951 GCGCCCAAGC GCCCGGCCGT GCCTCGGGGG GAAGGGGAGC GGCCGGGGGA  
 2001 CGGGAACGGG GACGAGGATA AGGACGACGA CGAGGACGAG GACGGGGACG  
 2051 AGCGCGAGGA GGTCGCGCGC GAGACCGGGG GCGGCGACGT TGGGTACCAG  
 40 2101 GGGGCCCCGG TCCTCGACCC CACCTCCGGG TTTCACGTCG ACCCCGTGGT  
 2151 GGTGTTTGAC TTTGCCAGCC TGTACCCAG CATCATCCAG GCCACAACC  
 45 2201 TGTGCTTCAG TACGCTCTCC CTGCGGCCCC AGGCCGTCGC GCACCTGGAG  
 2251 GCGGACCGGG ACTACCTGGA GATCGAGGTG GGGGGCCGAC GGCTGTTCTT  
 2301 CGTGAAGGCC CACGTACGCG AGAGCCTGCT GAGCATCCTG CTGCGCGACT  
 50 2351 GGCTGGCCAT GCGAAAGCAG ATCCGCTCGC GGATCCCCCA GAGCACCCCC  
 2401 GAGGAGGCCG TCCTCCTCGA CAAGCAACAG GCCGCCATCA AGGTGGTGTG  
 55 2451 CAACTCGGTG TACGGGTTCA CCGGGGCGCA GCACGGTCTT CTGCCCTGCC  
 2501 TGCACGTGGC CGCCACCGTG ACGACCATCG GCCGCGAGAT GCTCCTCGCG  
 2551 ACGCGCGCGT ACGTGACGCG GCGCTGGGCG GAGTTCGATC AGCTGCTGGC  
 60

5 **Figure 5C DNA and amino acid sequence list**

2601 CGACTTTCCG GAGGCGGCCG GCATGCGCGC CCCCGGTCCG TACTCCATGC  
 2651 GCATCATCTA CGGGGACACG GACTCCATTT TCGTTTGTG CCGCGGCCTC  
 10 2701 ACGGCCGCGG GCCTGGTGGC CATGGGCGAC AAGATGGCGA GCCACATCTC  
 2751 GCGCGCGCTG TTCCTCCCC CGATCAAGCT CGAGTGC GAA AAAACGTTCA  
 15 2801 CCAAGCTGCT GCTCATCGCC AAGAAAAAGT ACATCGGCGT CATCTGCGGG  
 2851 GGCAAGATGC TCATCAAGGG CGTGGATCTG GTGCGCAAAA ACAACTGCGC  
 2901 GTTTATCAAC CGCACCTCCA GGGCCCTGGT CGACCTGCTG TTTTACGAAG  
 20 2951 ATACCGTATC CGGAGCGGCC GCCGCGTTAG CCGAGCGCCC CGCAGAGGAG  
 3001 TGGCTGGCGC GACCCCTGCC CGAGGGACTG CAGGCGTTCG GGGCCGTCCT  
 25 3051 CGTAGACGCC CATCGGCGCA TCACCGACCC GGAGAGGGAC ATCCAGGACT  
 3101 TTGTCCTCAC CGCCGAAGTG AGCAGACACC CGCGCGCGTA CACCAACAAG  
 3151 CGCCTGGCCC ACCTGACGGT GTATTACAAG CTCATGGCCC GCCGCGCGCA  
 30 3201 GGTCCCGTCC ATCAAGGACC GGATCCCGTA CGTGATCGTG GCCCAGACCC  
 3251 GCGAGGTAGA GGAGACGGTC GCGCGGCTGG CCGCCCTCCG CGAGCTAGAC  
 35 3301 GCCGCGCCC CAGGGGACGA GCCCGCCCC CCAGCGGCCC TGCCCTCCCC  
 3351 GGCCAAGCGC CCCCGGGAGA CGCCGTCGCA TGCCGACCCC CCGGGAGGCG  
 3401 CGTCCAAGCC CCGCAAGCTG CTGGTGTCCG AGCTGGCGGA GGATCCCGGG  
 40 3451 TACGCCATCG CCCGGGGCGT TCCGCTCAAC ACGGACTATT ACTTCTCGCA  
 3501 CCTGCTGGGG GCGGCCTGCG TGACGTTCAA GGCCCTGTTT GGAAATAACG  
 45 3551 CCAAGATCAC CGAGAGTCTG TTAAAGAGGT TTATTCCCGA GACGTGGCAC  
 3601 CCCCCGACG ACGTGGCCGC GCGGCTCAGG GCCGCGGGGT TCGGGCCGGC  
 3651 GGGGGCCGGC GCTACGGCGG AGGAAACTCG TCGAATGTTG CATAGAGCCT  
 50 3701 TTGATACTCT AGCATGA

5 **Figure 5D DNA and amino acid sequence list****SEQ. ID. NO. 2** Amino acid sequence of DNA polymerase for HSV2-MS-M1

1 MFCAAGGPTS PGGKSAARAA SGFFAPHNPR GATQTAPPPC RRQNFYNPHL  
 10 51 AQTGTQPKAP GPAQRHTYYS ECDEFRIAP RSLDEDAPAE QRTGVHDGRL  
 101 RRAPKVYCGG DERDVLRVGP EGFWRRLRL WGGADHAPKG FDPTVTVFHV  
 15 151 YDILEHVEHA YSMRAAQLHE RFMDAITPAG TVITLLGLTP EGHRAVAVHV  
 201 GTRQYFYMNK AEVDRHLQCR APRDLCERLA AALRESPGAS FRGISADHFE  
 251 AEVVERADVY YYETRPTLYY RVFVRSGRAL AYLCDNFCPA IRKYEGGVDA  
 20 301 TTRFILDNPG FVTFGWYRLK PGRGNAPAQP RPPTAFGTSS DVEFNCTADN  
 351 LAVEGAMCDL PAYKLMCFDI ECKAGGEDEL AFPVAERPED LVIQISCLLY  
 401 DLSTTALEHI LLFSLGSCDL PESHLSDLAS RGLPAPVVLE FDSEFEMLLA  
 25 451 FMTFVKQYGP EFVTGYNIIN FDWPFVLTCL TEIYKVPLDG YGRMNRRGVF  
 501 RVWDIGQSHF QKRSEIKVNG MVNIDMYGII TDKVKLSSYK LNAVAEAVLK  
 30 551 DKKKDLSDYRD IPAYYASGPA QRGVIGEYCV QDSLLVGQLF FKFLPHLELS  
 601 AVARLAGINI TRTIYDGQOI RVFTCLLRLA GQKGFILPDT QGRFRGLDKE  
 651 APKRPAVPRG EGERPGDGNG DEDKDDDEDE DGDREEVAR ETGGRHVGYQ  
 35 701 GARVLDPTSG FHVDPVVVFD FASLYPSIIQ AHNLCFSTLS LRPEAVAHLE  
 751 ADRDYLEIEV GGRRLFFVKA HVRESLLSIL LRDWLAMRKQ IRSRIPQSTP  
 40 801 EEAVLLDKQQ AAIKVCNSV YGFTGAQHGL LPCLHVAATV TTIGREMLLA  
 851 TRAYVHARWA EFDQLLADFP EAAGMRAPGP YSMRIYGDT DSIFVLCRGL  
 901 TAAGLVAMGD KMASHISRAL FLPIKLECE KTFTKLLLIA KKKYIGVICG  
 45 951 GKMLIKGVDL VRKNNCAFIN RTSRALVDLL FYDDTVSGAA AALAERPAEE  
 1001 WLARPLPEGL QAFGAVLVDA HRRITDPERD IQDFVLTAEI SRHPRAYTNK  


---

 50 1051 RLAHLTVYYK LMARRAQVPS IKDRIPYVIV AQTREVEETV ARLAALRELD  
 1101 AAAPGDEPAP PAALPSPAKR PRETPSHADP PGGASKPRKL LVSELAEDPG  
 1151 YAIARGVPLN TDYYFSLHLLG AACVTFKALF GNNAKITESL LKRFIPETWH  
 55 1201 PPDDVAARLR AAGFGPAGAG ATAEETRRML HRAFDTLA\*

5 **Figure 5E DNA and amino acid sequence list****SEQ.ID.NO. 3** DNA sequence of DNA polymerase gene for HSV2-186-M1

10 1 ATGTTTTGTG CCGCGGGCGG CCGGGCTTCC CCCGGGGGGA AGTCGGCGGC  
 51 TCGGGCGGCG TCTGGGTTTT TTGCCCCCA CAACCCCGG GGAGCCACCC  
 101 AGACGGCACC GCCGCCTTGC CGCGGCAGA ACTTCTACAA CCCCACCTC  
 15 151 GCTCAGACCG GAACGCAGCC AAAGGCCCCC GGGCCGGCTC AGCGCCATAC  
 201 GTACTACAGC GAGTGCACG AATTTCGATT TATCGCCCCG CGTTCGCTGG  
 20 251 ACGAGGACGC CCCCGCGGAG CAGCGCACCG GGGTCCACGA CGGCCGCCTC  
 301 CGGCGCGCCC CTAAGGTGTA CTGCGGGGGG GACGAGCGCG ACGTCCTCCG  
 351 CGTGGGCCCC GAGGGCTTCT GGCCGCGTCG CTTGCGCCTG TGGGGCGGTG  
 25 401 CGGACCATGC CCCCGAGGGG TCGACCCCA CCGTCACCGT CTTCCACGTG  
 451 TACGACATCC TGGAGCACGT GGAACACGCG TACAGCATGC GCGCCGCCCA  
 501 GCTCCACGAG CGATTTATGG ACGCCATCAC GCCCGCCGGG ACCGTCATCA  
 551 CGCTTCTGGG TCTGACCCCC GAAGGCCATC GCGTCGCCGT TCACGTCTAC  
 601 GGCACGCGGC AGTACTTTTA CATGAACAAG GCGGAGGTGG ATCGGCACCT  
 35 651 GCAGTGCCGT GCCCCGCGCG ATCTCTGCGA GCGCCTGGCG GCGGCCCTGC  
 701 GCGAGTCGCC GGGGGCGTCG TTCCGCGGCA TCTCCGCGGA CCACTTCGAG  
 40 751 GCGGAGGTGG TGGAGCGCGC CGACGTGTAC TATTACGAAA CGCGCCCGAC  
 801 CCTGTACTAC CGCGTCTTCG TGCGAAGCGG GCGCGCGCTG GCCTACCTGT  
 851 GCGACAACTT TTGCCCCGCG ATCAGGAAGT ACGAGGGGGG CGTCGACGCC  
 45 901 ACCACCCGGT TTATCCTGGA CAACCCGGGG TTTGTACCT TCGGCTGGTA  
 951 CCGCCTCAAG CCCGGCCGCG GGAACGCGCC GGCCCAACCG CGCCCCCGA  
 50 1001 CGGCGTTCGG AACCTCGAGC GACGTCGAGT TTAAGTGCAC GGCGGACAAC  
 1051 CTGGCCGTCG AGGGGGCCAT GTGTGACCTG CCGGCCTACA AGCTCATGTG  
 1101 CTTGATATC GAATGCAAGG CCGGGGGGGA GGACGAGCTG GCCTTTCCGG  
 55 1151 TCGCGGAACG CCCGGAAGAC CTCGTCATCC AGATCTCCTG TCTGCTCTAC  
 1201 GACCTGTCCA CCACCGCCT CGAGCACATC CTCCTGTTTT CGCTCGGATC

5

**Figure 5F DNA and amino acid sequence list**

10 1251 CTGCGACCTC CCCGAGTCCC ACCTCAGCGA TCTCGCCTCC AGGGGCCTGC  
 1301 CGGCCCCCGT CGTCCTGGAG TTTGACAGCG AATTCGAGAT GCTGCTGGCC  
 1351 TTCATGACCT TCGTCAAGCA GTACGGCCCC GAGTTCGTGA CCGGGTACAA  
 15 1401 CATCATCAAC TTCGACTGGC CCTTCGTCCT GACCAAGCTG ACGGAGATCT  
 1451 ACAAGGTCCC GCTCGACGGG TACGGGCGCA TGAACGGCCG GGGTGTGTTC  
 20 1501 CGCGTGTGGG ACATCGGCCA GAGCCACTTT CAGAAGCGCA GCAAGATCAA  
 1551 GGTGAACGGG ATGGTGAACA TCGACATGTA CGGCATCATC ACCGACAAGG  
 1601 TCAAACCTCTC CAGCTACAAG CTGAACGCCG TCGCCGAGGC CGTCTTGAAG  
 25 1651 GACAAGAAGA AGGATCTGAG CTACCGCGAC ATCCCCGCCT ACTACGCCTC  
 1701 CGGGCCCGCG CAGCGCGGGG TGATCGGCGA GTATTGTGTG CAGGACTCGC  
 30 1751 TGCTGGTTCG GCAGCTGTTC TTCAAGTTTC TGCCGCACCT GGAGCTTTCC  
 1801 GCCGTCGCGC GCCTGGCGGG CATCAACATC ACCCGCACCA TCTACGACGG  
 1851 CCAGCAGATC CGCGTCTTCA CGTGCTCCTT GCGCCTTGCG GGCCAGAAGG  
 35 1901 GCTTCATCCT GCCGGACACC CAGGGGCGGT TTCGGGGCCT CGACAAGGAG  
 1951 GCGCCCAAGC GCCCGGCCGT GCCTCGGGGG GAAGGGGAGC GGCCGGGGGA  
 40 2001 CGGGAACGGG GACGAGGATA AGGACGACGA CGAGGACGGG GACGAGGACG  
 2051 GGGACGAGCG CGAGGAGGTC GCGCGCGAGA CCGGGGGCCG GCACGTTGGG  
 2101 TACCAGGGGG CCCGGGTCTT CGACCCACAC TCCGGGTTTC ACGTCGACCC  
 45 2151 CGTGGTGGTG TTTGACTTTG CCAGCCTGTA CCCCAGCATC ATCCAGGCCC  
 2201 ACAACCTGTG CTTCAGTACG CTCTCCCTGC GGCCCGAGGC CGTCGCGCAC  
 50 2251 CTGGAGGCGG ACCGGGACTA CCTGGAGATC GAGGTGGGGG GCCGACGGCT  
 2301 GTTCTTCGTG AAGGCCACG TACGCGAGAG CCTGCTGAGC ATCCTGCTGC  
 2351 GCGACTGGCT GGCCATGCGA AAGCAGATCC GCTCGCGGAT CCCCCAGAGC  
 55 2401 CCCCCGAGG AGGCCGTCCT CCTCGACAAG CAACAGGCCG CCATCAAGGT  
 2451 GGTGTGCAAC TCGGTGTACG GGTTCACCGG GGCGCAGCAC GGTCTTCTGC  
 60 2501 CCTGCCTGCA CGTGGCCGCC ACCGTGACGA CCATCGGCCG CGAGATGCTC

5 **Figure 5G DNA and amino acid sequence list**

2551 CTCGCGACGC GCGCGTACGT GCACGCGCGC TGGGCGGAGT TCGATCAGCT  
 10 2601 GCTGGCCGAC TTTCCGGAGG CGGCCGGCAT GCGCGCCCCC GGTCCGTACT  
 2651 CCATGCGCAT CATCTACGGG GACACGGACT CCATTTTCGT TTTGTGCCGC  
 2701 GGCCTCACGG CCGCGGGCCT GGTGGCCATG GGCGACAAGA TGGCGAGCCA  
 15 2751 CATCTCGCGC GCGCTGTTCC TCCCCCGAT CAAGCTCGAG TGCGAAAAAA  
 2801 CGTTCACCAA GCTGCTGCTC ATCGCCAAGA AAAAGTACAT CGGCGTCATC  
 20 2851 TGCGGGGGCA AGATGCTCAT CAAGGGCGTG GATCTGGTGC GCAAAAACAA  
 2901 CTGCGCGTTT ATCAACGCA CCTCCAGGGC CCTGGTCGAC CTGCTGTTTT  
 2951 ACGACGATAC CGTATCCGGA GCGGCCGCG CGTTAGCCGA GCGCCCCGCA  
 25 3001 GAGGAGTGGC TGGCGCGACC CCTGCCCCGAG GGAAGTGCAGG CGTTCGGGGC  
 3051 CGTCCTCGTA GACGCCCATC GGCGCATCAC CGACCCGGAG AGGGACATCC  
 30 3101 AGGACTTTGT CCTCACCGCC GAACTGAGCA GACACCCGCG CGCGTACACC  
 3151 AACAAGCGCC TGGCCCACCT GACGGTGTAT TACAAGCTCA TGGCCCCGCG  
 3201 CGCGCAGGTC CCGTCCATCA AGGACCGGAT CCCGTACGTG ATCGTGGCCC  
 35 3251 AGACCCGCGA GGTAGAGGAG ACGGTCGCGC GGCTGGCCGC CCTCCGCGAG  
 3301 CTAGACGCGG CCGCCCCAGG GGACGAGCCC GCCCCCCCAG CGGCCCTGCC  
 40 3351 CTCCCCGGCC AAGCGCCCCC GGGAGACGCC GTGCGATGCC GACCCCCCGG  
 3401 GAGGCGCGTC CAAGCCCCGC AAGCTGCTGG TGTCGAGCT GGCGGAGGAT  
 3451 CCCGGGTACG CCATCGCCCG GGGCGTTCG CTCAACACGG ACTATTACTT  
 45 3501 CTCGCACCTG CTGGGGGCGG CCTGCGTGAC GTTCAAGGCC CTGTTTGGAA  
 3551 ATAACGCCAA GATCACCGAG AGTCTGTAA AGAGGTTTAT TCCCGAGACG  
 50 3601 TGGCACCCCC CGGACGACGT GGCCGCGCGG CTCAGGGCCG CGGGGTTCGG  
 3651 GCCGGCGGGG GCCGGCGCTA CGGCGGAGGA AACTCGTCGA ATGTTGCATA  
 3701 GAGCCTTTGA TACTCTAGCA TGA  
 55

5

**Figure 5H DNA and amino acid sequence list****SEQ.ID.NO. 4 Amino acid sequence of DNA polymerase for HSV2-186-M1**

10 1 MFCAAGGPAS PGGKSAARAA SGFFAPHNPR GATQTAPPPC RRQNFYNPHL  
 51 AQTGTQPKAP GPAQRHTYYS ECDEFRIAP RSLDEDAPAE QRTGVHDGRL  
 101 RRAPKVYCGG DERDVLRVGP EGFWRRLRL WGGADHAPEG FDPTVTVFHV  
 15 151 YDILEHVEHA YSMRAAQLHE RFMDAITPAG TVITLLGLTP EGHRAVHVY  
 201 GTRQYFYMNK AEVDRHLQCR APRDLCERLA AALRESPGAS FRGISADHFE  
 20 251 AEVVERADVY YYETRPTLYY RVFVRSGRAL AYLCDNFCA IRKYEGGVDA  
 301 TTRFILDNPG FVTFGWYRLK PGRGNAPAQ RPPTAFGTSS DVEFNCTADN  
 351 LAVEGAMCDL PAYKLMCFDI ECKAGGEDEL AFPVAERPED LVIQISCLLY  
 25 401 DLSTTALEHI LLFSLGSCDL PESHLSDLAS RGLPAPVVLE FDSEFEMLLA  
 451 FMTFVKQYGP EFVTGYNIIN FDWPFVLTKL TEIYKVPLDG YGRMNNGRGVF  
 30 501 RVWDIGQSHF QKRSEKIVNG MVNIDMYGII TDKVKLSSYK LNAVAEAVLK  
 551 DKKKDLRYRD IPAYYASGPA QRGVIGEYCV QDSSLVGQLF FKFLPHLELS  
 601 AVARLAGINI TRTIYDGQOI RVFTCLLRLA GQKGFILPDT QGRFRGLDKE  
 35 651 APKRPAVPRG EGERPGDGNG DEDKDDDEDG DEDGDREEV ARETGGRHVG  
 701 YQGARVLDPT SGFHVDPVVV FDFASLYPSI IQAHNLCFST LSLRPEAVAH  
 40 751 LEADRDYLEI EVGGRRLLFFV KAHVRESLLS ILLRDWLAMR KQIRSRIPOS  
 801 PPEEAVLLDK QQAAIKVVCN SVYGFTGAQH GLLPCLHVAA TVTTIGREML  
 851 LATRAYVHAR WAEFDQLLAD FPEAAGMRAP GPYSMRIYG DTDSIFVLCR  
 45 901 GLTAAGLVAM GDKMASHISR ALFLPPIKLE CEKTFTKLLL IAKKKYIGVI  
 951 CGGKMLIKGV DLVRKNNCAF INRTSRALVD LLFYDDTVSG AAAALAERPA  


---

 50 1001 EEWLARPLPE GLQAFGAVLV DAHRRITDPE RDIQDFVLTA ELSRHPRAYT  
 1051 NKRLAHLTVY YKLMARRAQV PSIKDRIPYV IVAQTREVEE TVARLAALRE  
 1101 LDAAAPGDEP APPAALPSA KRPRETPSHA DPPGGASKPR KLLVSELAED  
 55 1151 PGYAIARGVP LNTDYYFSLH LGAACVTFKA LFGNNAKITE SLLKRFPET  
 1201 WHPPDDVAAR LRAAGFGPAG AGATAEETRR MLHRAFDTLA \*

60



5 **Figure 5I DNA and amino acid sequence list**

**SEQ.ID.NO. 5** DNA sequence of DNA polymerase gene for HSV1-KOS-M1

```

10      1 ATGTTTTC CG GTGGCGGCGG CCGCTGTCC CCGGAGGAA AGTCGGCGGC
      51 CAGGGCGGCG TCGGGTTTT TTGCGCCCGC CGGCCCTCGC GGAGCCGGCC
      101 GGGGACCCCC GCCTTGTTTG AGGCAAACT TTTACAACCC CTACCTCGCC
15      151 CCAGTCGGGA CGCAACAGAA GCGACCGGG CCAACCCAGC GCCATACGTA
      201 CTATAGCGAA TCGATGAAT TCGATTCAT CGCCCGCGG GTGCTGGACG
20      251 AGGATGCCCC CCGGAGAAG CGCGCCGGG TGCACGACGG TCACCTCAAG
      301 CGCGCCOCCA AGGTGTACTG CGGGGGGGAC GAGCGCGACG TCCTCCGCGT
      351 CGGGTCGGGC GGCTTCTGGC CGCGGCGCTC GCGCCTGTGG GCGGCGTGG
25      401 ACCACGCCCC GCGGGGGTTC AACCCACCG TCACCGTCTT TCACGTGTAC
      451 GACATCCTGG AGAACGTGGA GCACGCGTAC GGCATGCGCG CGGCCAGTT
30      501 CCACGCGCGG TTTATGGACG CCATCACACC GACGGGGACC GTCATCACGC
      551 TCCTGGGCCT GACTCCGAA GGCCACCGG TGGCCGTTCA CGTTTACGGC
      601 ACGCGGCAGT ACTTTTACAT GAACAAGGAG GAGGTTGACA GGCACCTACA
35      651 ATGCCGCGCC CCACGAGATC TCTGCGAGCG CATGGCCGCG GCCCTGCGCG
      701 AGTCCCCGGG CGCGTCGTTT CGCGGCATCT CCGCGGACCA CTTCGAGGCG
40      751 GAGGTGGTGG AGCGCACCGA CGTGTACTAC TACGAGACGC GCCCCGCTCT
      801 GTTTTACCGC GTCTACGTCC GAAGCGGGCG CGTGCTGTG TACCTGTGCG
      851 ACAACTTCTG CCGGCCATC AAGAAGTACG AGGGTGGGGT CGACGCCACC
45      901 ACCCGGTTCA TCCTGGACAA CCGGGGTTC GTCACCTTCG GCTGGTACCG
      951 TCTCAAACCG GGCCGAACA ACACGCTAGC CCAGCCGCGG GCCCCGATGG
50      1001 CCTTCGGGAC ATCCAGCGAC GTCGAGTTTA ACTGTACGGC GGACAACCTG
      1051 GCCATCGAGG GGGGCATGAG CGACCTACCG GCATACAAGC TCATGTGCTT
      1101 CGATATCGAA TGCAAGGCGG GGGGGGAGGA CGAGCTGGCC TTTCGGTGG
55      1151 CCGGGCACCC GGAGGACCTG GTTATTCAGA TATCCTGTCT GCTCTACGAC
      1201 CTGTCCACCA CCGCCCTGGA GCACGTCCTC CTGTTTTCGC TCGGTTCTG

```

5

**Figure 5J DNA and amino acid sequence list**

10 1251 CGACCTCCCC GAATCCCACC TGAACGAGCT GGCGGCCAGG GGCCTGCCCCA  
 1301 CGCCCGTGGT TCTGGAATTC GACAGCGAAT TCGAGATGCT GTTGGCCTTC  
 1351 ATGACCCTTG TGAAACAGTA CGGCCCCGAG TTCGTGACCG GGTACAACAT  
 15 1401 CATCAACTTC GACTGGCCCT TCTTGCTGGC CAAGTTGACG GACATTTACA  
 1451 AGGTCCCCCT GGACGGGTAC GGCCGCATGA ACGGCCGGGG CGTGTTTCGC  
 20 1501 GTGTGGGACA TAGGCCAGAG CCACTTCCAG AAGCGCAGCA AGATAAAGGT  
 1551 GAACGGCATG GTGAACATCG ACATGTACGG GATCATAACC GACAAGATCA  
 1601 AGCTCTCGAG CTACAAGCTC AACGCCGTGG COGAAGCOGT CCTGAAGGAC  
 25 1651 AAGAAGAAGG ACCTGAGCTA TCGCGACATC CCCGCCTACT ACGCCGCCGG  
 1701 GCCCGCGCAA CGCGGGGTGA TCGCGAGTA CTGCATACAG GATTCCCTGC  
 30 1751 TGGTGGGCCA GCTGTTTTTT AAGTTTTTGC CCCATCTGGA GCTCTCGGCC  
 1801 GTCGCGCGCT TGGCGGGTAT TAACATCACC CGCACCATCT ACGACGGCCA  
 1851 GCAGATCCGC GTCTTTACGT GCCTGCTGCG CCTGGCCGAC CAGAAGGGCT  
 35 1901 TTATTCTGCC GGACACCCAG GGGCGATTTA GGGGCGCCGG GGGGGAGGCG  
 1951 CCCAAGCGTC CGGCCGAGC CCGGGAGGAC GAGGAGCGGC CAGAGGAGGA  
 40 2001 GGGGGAGGAC GAGGACGAAC GCGAGGAGGG CGGGGGCGAG CGGGAGCCGG  
 2051 AGGGCGCGCG GGAGACCGCC GGCCGGCACG TGGGGTACCA GGGGGCCAGG  
 2101 GTCCTTGACC CCACTTCCGG GTTTCACGTG AACCCCGTGG TGGTGTTCGA  
 45 2151 CTTTGCCAGC CTGTACCCCA GCATCATCCA GGCCCAACAAC CTGTGCTTCA  
 -----2201 GCACGCTCTC CCTGAGGGCC GACGCAGTGG CGCACCTGGA GGCGGGCAAG-----  
 50 2251 GACTACCTGG AGATCGAGGT GGGGGGGCGA CGGCTGTTCT TCGTCAAGGC  
 2301 TCACGTGCGA GAGAGCCTCC TCAGCATCCT CCTGCGGGAC TGGCTCGCCA  
 2351 TCGGAAAGCA GATCCGCTCG CGGATTCCCC AGAGCAGCCC CGAGGAGGCC  
 55 2401 GTGCTCCTGG ACAAGCAGCA GGCCGCCATC AAGGTCGTGT GTAACTCGGT  
 2451 GTACGGGTTC ACGGGAGCGC AGCACGGA CTGCGCGTGC CTGCACGTTG  
 60 2501 CCGCGACGGT GACGACCATC GGCCGCGAGA TGCTGCTCGC GACCCGCGAG

5 **Figure 5K DNA and amino acid sequence list**

2551 TACGTCCACG CGCGCTGGGC GGCCTTCGAA CAGCTCCTGG CCGATTTCCTCC  
 10 2601 GGAGGCGGCC GACATGCGCG CCCCCGGGOC CTATTCCATG CGCATCATCT  
 2651 ACGGGGACAC GGACTCCATA TTTGTGCTGT GCCGCGGCCT CACGGCCGCC  
 15 2701 GGGCTGACGG CCATGGGCGA CAAGATGGCG AGCCACATCT CGCGCGCGCT  
 2751 GTTTCTGCCC CCCATCAAAC TCGAGTGCGA AAAGACGTTC ACCAAGCTGC  
 2801 TGCTGATCGC CAAGAAAAAG TACATCGGCG TCATCTACGG GGGTAAGATG  
 20 2851 CTCATCAAGG GCGTGGATCT GGTGCGCAA AACAACGCG CGTTTATCAA  
 2901 CCGCACCTCC AGGGCCCTGG TCGACCTGCT GTTTTACGAC GATACCGTAT  
 25 2951 CCGGAGCGGC CGCCGCGTTA GCCGAGCGCC CCGCAGAGGA GTGGCTGGCG  
 3001 CGACCCCTGC CCGAGGGACT GCAGGCGTTC GGGGCCGTCC TCGTAGACGC  
 3051 CCATCGGCGC ATCACCGACC CGGAGAGGGA CATCCAGGAC TTTGTCCTCA  
 30 3101 CCGCCGAAC T GAGCAGACAC CCGCGCGCGT ACACCAACAA GCGCCTGGCC  
 3151 CACCTGACGG TGTATTACAA GCTCATGGCC CGCCGCGCGC AGGTCCCGTC  
 3201 CATCAAGGAC CGGATCCCGT ACGTGATCGT GGCCCAGACC CGCGAGGTAG  
 35 3251 AGGAGACGGT CGCGCGGCTG GCCGCCCTCC GCGAGCTAGA CGCCGCGGCC  
 3301 CCAGGGGACG AGCCCGCCCC CCCC GCGGCC CTGCCCTCCC CGGCCAAGCG  
 40 3351 CCCCCGGGAG ACGCCGTCGC ATGCCGACCC CCCGGGAGGC GCGTCCAAGC  
 3401 CCGCAAGCT GCTGGTGTCC GAGCTGGCCG AGGATCCCGC ATACGCCATT  
 3451 GCCCACGGCG TCGCCCTGAA CACGGACTAT TACTTCTCCC ACCTGTTGGG  
 45 3501 GCGGCGTGC GTGACATTCA AGGCCCTGTT TGGGAATAAC GCCAAGATCA  
 3551 CCGAGAGTCT GTTAAAAAGG TTTATTCCCG AAGTGTGGCA CCCCCGGAC  
 50 3601 GACGTGGCCG CGCGGCTCCG GGCCGACAGG TTCGGGGCGG TGGGTGCCG  
 3651 CGCTACGGCG GAGGAACTC GTCGAATGTT GCATAGAGCC TTTGATACTC  
 3701 TAGCATGA  
 55

60

5 **Figure 5L DNA and amino acid sequence list****SEQ.ID.NO. 6** Amino acid sequence of DNA polymerase for HSV1-KOS-M1

1 MFSGGGGPLS PGGKSAARAA SGFFAPAGPR GAGRGPPPCL RQNFYNPYLA  
 10 51 PVGTQQKPTG PTQRHTYYSE CDEFRIAPR VLDEDAPEK RAGVHDGHLK  
 101 RAPKVYCGGD ERDVLRVGSG GFWPRRSRLW GGVDHAPAGF NPTVTVFHVY  
 15 151 DILENVEHAY GMRAAQFHAR FMDAITPTGT VITLLGLTPE GHRVAVHVYG  
 201 TRQYFYMNKE EVDRHLQCRA PRDLCERMAA ALRESPGASF RGISADHFEA  
 251 EVVERTDVYY YETRPALFYR VYVRSGRVLS YLCDNFCPAI KKYEGGV DAT  
 20 301 TRFILDNPGF VTFGWYRLKP GRNNTLAQPR APMAFGTSSD VEFNCTADNL  
 351 AIEGGMSDLP AYKLMCFDIE CKAGGEDELA FPVAGHPEDL VIQISCLLYD  
 401 LSTTALEHVL LFSLGSCDLP ESHLNELAAR GLPTPVVLEF DSEFEMLLAF  
 25 451 MTLVKQYGPE FVTGYNINIF DWPFLAKLT DIYKVPLDGY GRMN GRGVFR  
 501 VWDIGQSHFQ KRSKIKVNGM VNIDMYGIIT DKIKLSSYKL NAVA EAVLKD  
 30 551 KKKDLSYRDI PAYYAAGPAQ RGVIGEYCIQ DSLLVGQLFF KFLPHLELSA  
 601 VARLAGINIT RTIYDGQQIR VFTCLRLAD QKGFILPDTQ GRFRGAGGEA  
 651 PKRPAAARED EERPEEEGED EDEREEGGGE REPEGARETA GRHVGYQGAR  
 35 701 VLDPTSGFHV NPVVVFDFAS LYPSTIAHN LCFSTLSLRA DAVAHLEAGK  
 751 DYLEIEVGGR RLFFVKAHVR ESLLSILLRD WLAMRKQIRS RIPQSSPEEA  
 40 801 VLLDKQAAI KVCNSVYGF TGAQHGLLPC LHVAATVTTI GREMLLATRE  
 851 YVHARWAAFE QLLADFPEAA DMRAPGPYSM RIYGD TDSI FVLCRGLTAA  
 901 GLTAMGDKMA SHISRALFLP PIKLECEKTF TKLLLIAKKK YIGVIYGGKM  
 45 951 LIKGVDLVRK NNCAFINRTS RALVDLLFYD DTVSGAAAAL AERP AEWLA  
 1001 RPLPEGLQAF GAVLVDAHRR ITDPERDIQD FVLTAELSRH PRAYTNKRLA  
 50 1051 HLTVYYKLMA RRAQVPSIKD RPYVIVAQT REVEETVARL AALRELDAAA  
 1101 PGDEPAPPAA LPSPAKRPRE TPSHADPPGG ASKPRKLLVS ELAEDPAYAI  
 1151 AHGVALNTDY YFSHLLGAAC VTFKALFGNN AKITESLLKR FIPEVWHPPD  
 55 1201 DVAARLRAAG FGAVGAGATA EETRRMLHRA FDTLA\*

5 **Figure 5M DNA and amin acid sequence list****SEQ.ID.NO. 7** DNA sequence of HSV polymerase gene for HSV1-F-M1

```

1  ATGTTTTCCG GTGGCGGCGG CCCGCTGTCC CCCGAGAGAA AGTCGGCGGC
10  51  CAGGGCGGCG TCCGGGTTTT TTGCGCCCGC CGGCCCTCGC GGAGCCGGCC
    101  GGGGACCCCC GCCTTGCTTG AGGCAAAACT TTTACAACCC CTACCTCGCC
15  151  CCAGTCGGA  CGAACAGAA GCCGACCGG CCAACCCAGC GCCATACGTA
    201  CTATAGCGAA TGCGATGAAT TTCGATTCAT CGCCCCGCGG GTGCTGGACG
    251  AGGATGCCCC CCCGAGAAG CGCGCCGGG TGCACGACGG TCACCTCAAG
20  301  CGCGCCCCCA AGGTGTACTG CGGGGGGAC GAGCGCGACG TCCTCCGCGT
    351  CGGTTCGGG  GGCTTCTGGC CGCGGCGCTC GCGCCTGTGG GCGGCGGTGG
25  401  ACCACGCCCC GCGGGGGTTC AACCCACCG TCACCGTCTT TCACGTGTAC
    451  GACATCCTGG AGAACGTGGA GCACGCGTAC GGCATGCGCG CGGCCAGTT
    501  CCACGCGCGG TTTATGGACG CCATCACACC GACGGGGACC GTCATCACGC
30  551  TCCTGGGCCT GACTCCGGA  GGCCACCGG TGGCCGTTC  CGTTTACGGC
    601  ACGCGGCAGT ACTTTTACAT GAACAAGGAG GAGGTCGACA GGCACCTACA
35  651  ATGCCGCGCC CCACGAGATC TCTGCGAGCG CATGGCCGCG GCCCTGCGCG
    701  AGTCCCCGGG CGCGTCGTTC CGCGGCATTT CCGCGGACCA CTTGAGGGC
    751  GAGGTGGTGG AGCGCACCGA CGTGTACTAC TACGAGACGC GCCCCGCTCT
40  801  GTTTTACCGC GTCTACGTCC GAAGCGGGCG CGTGCTGTCG TACCTGTGCG
    851  ACAACTTCTG CCCGGCCATC AAGAAGTACG AGGTGGGGT  CGACGCCACC
45  901  ACCCGTTTCA TCCTGGACAA CCCCGGGTTC GTCACCTTCG GCTGGTACCG
    951  TCTCAAACCG GGCCGAACA ACACGCTAGC CCAGCCGCGG GCCCGATGG
1001 CCTTCGGGAC ATCCAGCGAC GTCGAGTTTA ACTGTACGGC GGACAACCTG
50  1051 GCCATCGAGG GGGGCATGAG CGACCTACCG GCATACAAGC TCATGTGCTT
    1101 CGATATCGAA TGCAAGGCGG GGGGGAGGA CGAGCTGGCC TTCCGGTGG
55  1151 CCGGGCACCC GGAGGACCTG GTCATCCAGA TATCCTGTCT GCTCTACGAC
    1201 CTGTCCACCA CCGCCCTGGA GCACGTCCTC CTGTTTTCGC TCGGTTCCTG
    1251 CGACCTCCCC GAATCCCACC TGAACGAGCT GGCGGCCAGG GGCCTGCCCA
60

```

5 **Figure 5N DNA and amino acid sequence list**

	1301	CGCCCGTGGT	TCTGGAATTC	GACAGCGAAT	TCGAGATGCT	GTTGGCCTTC
	1351	ATGACCCCTTG	TGAAACAGTA	CGGCCCCGAG	TTCGTGACCG	GGTACAACAT
10	1401	CATCAACTTC	GACTGGCCCT	TCTTGCTGGC	CAAGCTGACG	GACATTTACA
	1451	AGGTCCCCCT	GGACGGGTAC	GGCCGCATGA	ACGGCCGGGG	CGTGTTCGCG
15	1501	GTGTGGGACA	TAGGCCAGAG	CCACTTCCAG	AAGCGCAGCA	AGATAAAGGT
	1551	GAACGGCATG	GTGAACATCG	ACATGTACGG	GATTATAACC	GACAAGATCA
	1601	AGCTCTCGAG	CTACAAGCTC	AACGCCGTGG	CCGAAGCCGT	CCTGAAGGAC
20	1651	AAGAAGAAGG	ACCTGAGCTA	TCGCGACATC	CCCGCCTACT	ACGCCGCCGG
	1701	GCCCCGCGAA	CGCGGGGTGA	TCGGCGAGTA	CTGCATACAG	GATTCCCTGC
25	1751	TGGTGGGCCA	GCTGTTTTTT	AAGTTTTTGC	CCCATCTGGA	GCTCTCGGCC
	1801	GTCGCGCGCT	TGGCGGGTAT	TAACATCACC	CGCACCATCT	ACGACGGCCA
	1851	GCAGATCCGC	GTCTTTACGT	GCCTGCTGCG	CCTGGCCGAC	CAGAAGGGCT
30	1901	TTATTCTGCC	GGACACCCAG	GGGCGATTTA	GGGGCGGCGG	GGGGGAGGCG
	1951	CCCAAGCGTC	CGGCCGCAGC	CCGGGAGGAC	GAGGAGCGGC	CAGAGGAGGA
35	2001	GGGGGAGGAC	GAGGACGAAC	GCGAGGAGGG	CGGGGGCGAG	CGGGAGCCGG
	2051	AGGGCGCGCG	GGAGACCGCC	GGCCGCGACG	TGGGGTACCA	GGGGGCCAGG
	2101	GTCCTTGACC	CCACTTCCGG	GTTTCATGTG	AACCCCGTGG	TGGTGTTCGA
40	2151	CTTTGCCAGC	CTGTACCCCA	GCATCATCCA	GGCCCACAAC	CTGTGCTTCA
	2201	GCACGCTCTC	CCTGAGGGCC	GACGCAGTGG	CGCACCTGGA	GGCGGGCAAG
45	2251	GACTACCTGG	AGATCGAGGT	GGGGGGGCGA	CGGCTGTTCT	TCGTCAAGGC
	2301	TCACGTGCGA	GAGAGCCTCC	TCAGCATCCT	CCTGCGGGAC	TGGCTCGCCA
50	2351	TGCGAAAGCA	GATCCGCTCG	CGGATTCCCC	AGAGCAGCCC	CGAGGAGGCC
	2401	GTGCTCCTGG	ACAAGCAGCA	GGCCGCCATC	AAGGTCGTGT	GTAACTCGGT
	2451	TTACGGGTTC	ACGGGAGCGC	AGCACGGACT	CCTGCCGTGC	CTGCACGTTG
55	2501	CCGCGACGGT	GACGACCATC	GGCCGCGAGA	TGCTGCTCGC	GACCCGCGAG
	2551	TACGTCCACG	CGCGCTGGGC	GGCCTTCGAA	CAGCTCCTGG	CCGATTTCCC
60	2601	GGAGGCGGCC	GACATGCGCG	CCCCGGGGCC	CTATTCCATG	CGCATCATCT

5

**Figure 50 DNA and amino acid sequence list**

10 2651 ACGGGGACAC GGACTCCATC TTTGTGCTGT GCCGCGGCCT CACGGCCGCC  
 2701 GGGCTGACGG CCGTGGGCGA CAAGATGGCG AGCCACATCT CGCGCGCGCT  
 2751 GTTCTGTGCC CCCATCAAAC TCGAGTGC GA AAAGACGTTC ACCAAGCTGC  
 15 2801 TGCTGATCGC CAAGAAAAAG TACATCGGCG TCATCTACGG GGGTAAGATG  
 2851 CTCATCAAGG GCGTGGATCT GGTGCGCAAA AACAACTGCG CGTTTATCAA  
 20 2901 CCGCACCTCC AGGGCCCTGG TCGACCTGCT GTTTTACGAC GATACCGTAT  
 2951 CCGGAGCGGC CGCCGCGTTA GCCGAGCGCC CCGCAGAGGA GTGGCTGGCG  
 3001 CGACCCCTGC CCGAGGGACT GCAGGCGTTC GGGGCCGTCC TCGTAGACGC  
 25 3051 CCATCGGCGC ATCACCGACC CGGAGAGGGA CATCCAGGAC TTTGTCCTCA  
 3101 CCGCCGA ACT GAGCAGACAC CCGCGCGCGT ACACCAACAA GCGCCTGGCC  
 3151 CACCTGACGG TGTATTACAA GTCATGGCC CGCCGCGCGC AGGTCCCGTC  
 30 3201 CATCAAGGAC CGGATCCCGT ACGTGATCGT GGCCCAGACC CGCGAGGTAG  
 3251 AGGAGACGGT CGCGCGGCTG GCCGCCCTCC GCGAGCTCGA CGCCGCCGCC  
 35 3301 CCAGGGGACG AGCCCGCCCC CCCCGCGGCC CTGCCCTCCC CGGCCAAGCG  
 3351 CCCCCGGGAG ACGCCGTTGC ATGCCGACCC CCCGGGAGGC GCGTCCAAGC  
 3401 CCCGCAAGCT GCTGGTGTCC GAGCTGGCCG AGGATCCCGC ATACGCCATT  
 40 3451 GCCCACGGCG TCGCCCTGAA CACGGACTAT TACTTCTCCC ACCTGTTGGG  
 3501 GGCGGCGTGC GTGACATTCA AGGCCCTGTT TGGGAATAAC GCCAAGATCA  
 45 3551 CCGAGAGTCT GTTAAAAAGG TTTATTCCCG AAGTGTGGCA CCCCCCGGAC  
 3601 GACGTGGCCG CGCGGCTCCG GGCCGAGGG TTCGGGGCGG TGGGTGCCGG  


---

 50 3651 CGCTACGGCG GAGGAACTC GTCGAATGTT GCATAGAGCC TTTGATACTC  
 3701 TAGCATGA

5 **Figure 5P DNA and amino acid sequence list**

**SEQ.ID.NO. 8 Amino acid sequence of DNA polymerase for HSV1-F-M1**

10 1 MFSGGGGPLS PGGKSAARAA SGFFAPAGPR GAGRGPPLCL RQNFYNPYLA  
 51 PVGTQQKPTG PTQRHTYYSE CDEFRFIAPR VLDEDAPEEK RAGVHDGHLK  
 101 RAPKVYCGGD ERDVLRVGSG GFWPRRSRLW GGVDHAPAGF NPTVTVFHVY  
 15 151 DILENVEHAY GMRAAQFHAR FMDAITPTGT VITLLGLTPE GHRVAVHVYG  
 201 TRQYFYMNKE EVDRHLQCRA PRDLCERMAA ALRESPGASF RGISADHFEA  
 251 EVVERTDVYY YETRPALFYR VYVRSGRVLS YLCDNFCPAI KKYEGGV DAT  
 20 301 TRFILDNPGF VTFGWYRLKP GRNNTLAQPR APMAFGTSSD VEFNCTADNL  
 351 AIEGGMSDLP AYKLMCFDIE CKAGGEDELA FPVAGHPEDL VIQISCLLYD  
 25 401 LSTTALEHVL LFSLGSCDLP ESHLNELAAR GLPTPVVLEF DSEFEMLLAF  
 451 MTLVKQYGPE FVTGYNIINF DWPFLAKLT DIYKVPLDGY GRMNNGRGVFR  
 501 VWDIGQSHFQ KRSKIKVNGM VNIDMYGIIT DKIKLSSYKL NAVA EAVLKD  
 30 551 KKKDLSYRDI PAYYAAGPAQ RGVIGEYCIQ DSVLVGQLFF KFLPHLELSA  
 601 VARLAGINIT RTIYDGQQIR VFTCLRLAD QKGFILPDTQ GRFRGGGGEA  
 35 651 PKRPAAARED EERPEEEGED EDEREEGGGE REPEGARETA GRHVG YQGAR  
 701 VLDPTSGFHV NPVVVDFDAS LYPSIIQAHN LCFSTLSLRA DAVAHLEAGK  
 751 DYLEIEVGGR RLFFVKAHVR ESLLSILLRD WLAMRKQIRS RIPQSSPEEA  
 40 801 VLLDKQQA AI KVCNSVYGF TGAQHGLLPC LHVAATVT TI GREMLLATRE  
 851 YVHARWAAFE QLLADFPEAA DMRAPGPYSM RIYGD TDSI FVLCRGLTAA  
 45 901 GLTAVGDKMA SHISRALFLS PIKLECEKTF TKLLLI AKKK YIGVTYGGKM  
 951 LIKGVDLVRK NNCAFINRTS RALVDLLFYD DTVSGAAAAL AERP AEWLA  


---

 50 1001 RPLPEGLQAF GAVLVDAHRR ITDPERDIQD FVLTAELSRH PRAYTNKRLA  
 1051 HLTVYYKLMA RRAQVPSIKD RPYVIVAQT REVEETVARL AALRELDAAA  
 1101 PGDEFAPPAA LPSPAKRPRE TPLHADPPGG ASKPRKLLVS ELAEDPAYAI  
 55 1151 AHGVALNTDY YFSHLLGAAC VTFKALFGNN AKITESLLKR FIPEVWHPPD  
 1201 DVAARLRAAG FGAVGAGATA EETRRMLHRA FDTLA\*

60



5 **Figure 5Q DNA and amino acid sequence list**

**SEQ.ID.NO. 9** DNA sequence of HSV polymerase gene for HSV1-DJL-M1

```

1 ATGTTTTCCG GTGGCGGCGG CCCGCTGTCC CCCGGAGGAA AGTCGGCGGC
10 51 CAGGGCGGCG TCCGGGTTTT TTGCGCCCGC CGGCCCTCGC GGAGCCGGCC
101 GGGGACCCCC GCCTTGTTTG AGGCAAAACT TTTACAACCC CTACCTCGCC
151 CCAGTCGGGA CGCAACAGAA GCCGACCGGG CCAACCCAGC GCCATACGTA
15 201 CTATAGCGAA TGCGATGAAT TTCGATTCAT CGCCCCGCGG GTGCTGGAAG
251 AGGATGCCCC CCCGGAGAAG CGCGCCGGGG TGCACGACGG TCACCTCAAG
20 301 CGCGCCCCCA AGGTGTACTG CGGGGGGGAC GAGCGCGACG TCCTCCGCGT
351 CGGGTCGGGC GGCTTCTGGC CGCGGCGCTC GCGCCTGTGG GGCGGCGTGG
401 ACCACGCCCC GGCGGGGTTT AACCCACCG TCACCGTCTT TCACGTGTAT
25 451 GACATCCTGG AGAACGTGGA GCACGCGTAC GGCATGCGCG CGGCCAGTT
501 CCACGCGCGG TTTATGGACG CCATCACACC GACGGGGACC GTCATCACGC
30 551 TCCTGGGCCT GACTCCGGAA GGCCACCGGG TGGCCGTTCA CGTTTACGGC
601 ACGCGCAGT ACTTTTACAT GAACAAGGAG GAGGTTGACA GGCACCTACA
651 ATGCCGCGCC CCACGAGATC TCTGCGAGCG CATGGCCGCG GCCCTGCGCG
35 701 AGTCCCCGGG CGCGTCGTTC CGCGGCATCT CCGCGGACCA CTTCGAGGCG
751 GAGGTGGTGG AGCGCACCGA CGTGTACTAC TACGAGACGC GCCCCGCTCT
40 801 GTTTTACCGC GTCTACGTCC GAAGCGGGCG CGTGCTGTCG TACCTGTGCG
851 ACAACTTCTG CCCGGCCATC AAGAAGTACG AGGGTGGGGT CGACGCCACC
901 ACCCGGTTCA TCCTGGACAA CCCCGGGTTC GTCACCTTCG GCTGGTACCG
45 951 TCTCAAACCG GGCCGGAACA ACACGCTAGC CCAGCCGCGG GCCCCGATGG
1001 CCTTCGGGAC ATCCAGCGAT GTCGAGTTTA ACTGTACGGC GGACAACCTG
50 1051 GCCATCGAGG GGGGCATGAG CGACCTACCG GCATACAAGC TCATGTGCTT
1101 CGATATCGAA TGCAAGGCGG GGGGGGAGGA CGAGCTGGCC TTTCGGGTGG
1151 CCGGGCACCC GGAGGACCTG GTCATCCAGA TATCCTGTCT GCTCTACGAC
55 1201 CTGTCCACCA CCGCCCTGGA GCACGTCCTC CTGTTTTCGC TCGGTTCTTG
1251 CGACCTCCCC GAATCCCACC TGAACGAGCT GGCGGCCAGG GGCTTGCCCA

```

5

**Figure 5R DNA and amino acid sequence list**

10 1301 CGCCCGTGGT TCTGGAATTC GACAGCGAAT TCGAGATGCT GTTGGCCTTC  
 1351 ATGACCCTTG TGAAACAGTA CGGCCCGAG TTCGTGACCG GGTACAACAT  
 1401 AATCAACTTC GACTGGCCCT TCTTGCTGGC CAAGCTGACG GACATTTACA  
 15 1451 AGGTCCCCCT GGACGGGTAC GGCCGCATGA ACGGCCGGGG CGTGTTTCGC  
 1501 GTGTGGGACA TAGGCCAGAG CCACTTCCAG AAGCGCAGCA AGATAAAGGT  
 20 1551 GAACGGCATG GTGAACATCG ACATGTACGG GATTATAACC GACAAGATCA  
 1601 AGCTCTCGAG CTACAAGCTC AACGCCGTGG CCGAAGCCGT CCTGAAGGAC  
 1651 AAGAAGAAGG ACCTGAGCTA TCGCGACATC CCCACCTACT ACGCCGCCGG  
 25 1701 GCCCGCGCAA CGCGGGGTGA TCGCGAGTA CTGCATACAG GATTCCCTGC  
 1751 TGGTGGGCCA GCTGTTTTTT AAGTTTTTGC CCCATCTGGA GCTCTCGGCC  
 1801 GTCGCGCGCT TGGCGGGTAT TAACATCACC CGCACCATCT ACGACGGCCA  
 30 1851 GCAGATCCGC GTCTTTACGT GCCTGCTGCG CCTGGCCGAC CAGAAGGGCT  
 1901 TTATTCTGCC GGACACCCAG GGGCGATTTA GGGGCGCCGG GGGGGAGGCG  
 35 1951 CCCAAGCGTC CGGCCGCAGC CCGGGAGGAC GAGGAGCGGC CAGAGGAGGA  
 2001 GGGGGAGGAC GAGAACGAAC GCGAGGAGGG CGGGGGCGAG CGGGAGCCGG  
 2051 AGGGCGCGCG GGAGACCGCC GGCCGGCAAG TGGGGTACCA GGGGGCCAGG  
 40 2101 GTCCTTGACC CCACTTCCGG GTTTCACGTG AACCCCGTGG TGGTGTTCTGA  
 2151 CTTTGCCAGC CTGTACCCCA GCATCATCCA GGCCCACAAC CTGTGCTTCA  
 45 2201 GCACGCTCTC CCTGAGGGCC GACGCAGTGG CGCACCTGGA GGCGGGCAAG  
 2251 GACTACCTGG AGATCGAGGT GGGGGGGCGA CGGCTGTTCT TCGTCAAGGC  


---

 50 2301 TCACGTGCGA GAGAGCCTCC TCAGCATCCT CCTGCGGGAC TGGCTCGCCA  
 2351 TGCGAAAGCA GATCCGCTCG CGGATTCCCC AGAGCAGCCC CGAGGAGGCC  
 2401 GTGCTCCTGG ACAAGCAGCA GGCCGCCATC AAGGTCGTGT GTAACTCGGT  
 55 2451 TTACGGGTTC ACGGGAGCGC AGCACGGACT CCTGCCGTGC CTGCACGTTG  
 2501 CCGCGACGGT GACGACCATC GGCCGCGAGA TGCTGCTCGC GACCCGCGAG  
 2551 TACGTCCACG CGCGCTGGGC GGCCTTCGAA CAGCTCCTGG CCGATTTCCT

60

5 **Figure 5S DNA and amino acid sequence list**

2601 GGAGGCGGCC GACATGCGCG CCCCCGGGCC CTATTCCATG CGCATCATCT  
 10 2651 ACGGGGACAC GGACTCCATA TTTGTGCTGT GCCGCGGCCT CAOGGCCGCC  
 2701 GGGCTGACGG CCGTGGGCGA CAAGATGGCG AGCCACATCT CGCGCGCGCT  
 2751 GTTTCTGCCC CCCATCAAAC TCGAGTGCGA AAAGACGTTC ACCAAGCTGC  
 15 2801 TGCTGATCGC CAAGAAAAAG TACATCGGCG TCATCTACGG GGGTAAGATG  
 2851 CTCATCAAGG GCGTGGATCT GGTGCGCAA AACAAGTGG CGTTTATCAA  
 20 2901 CCGCACCTCC AGGGCCCTGG TCGACCTGCT GTTTTACGAC GATACCGTAT  
 2951 CCGGAGCGGC CGCCGCGTTA GCCGAGCGCC CCGCAGAGGA GTGGCTGGCG  
 3001 CGACCCCTGC CCGAGGGACT GCAGGCGTTC GGGGCCGTCC TCGTAGACGC  
 25 3051 CCATCGGCGC ATCACCGACC CGGAGAGGGA CATCCAGGAC TTTGTTCTCA  
 3101 CCGCCGA ACT GAGCAGACAC CCGCGCGCGT ACACCAACAA GCGCCTGGCC  
 30 3151 CACCTGACGG TGTATTACAA GTCATGGCC CGCCGCGCGC AGGTCCCGTC  
 3201 CATCAAGGAC CGGATCCCGT ACGTGATCGT GGCCCAGACC CGCGAGGTAG  
 3251 AGGAGACGGT CGCGCGGCTG GCGCCCTCC GCGAGCTAGA CGCCGCCGCC  
 35 3301 CCAGGGGACG AGCCCGCCCC CCGCGGGCC CTGCCCTCCC CGGCCAAGCG  
 3351 CCCCCGGGAG ACGCCGTCGC CTGCCGACCC CCGGGAGGC GCGTCCAAGC  
 40 3401 CCCGCAAGCT GCTGGTGTCC GAGCTGGCCG AGGATCCCGC ATACGCCATT  
 3451 GCCCACGGCG TCGCCCTGAA CACGGA CTAT TACTTCTCCC ACCTGTTGGG  
 3501 GGCGGCGTGC GTGACATTCA AGGCCCTGTT TGGGAATAAC GCCAAGATCA  
 45 3551 CCGAGAGTCT GTTAAAAAGG TTTATTCCCG AAGTGTGGCA CCCCCGGAC  
 3601 GACGTGGCCG CGCGGCTCCG GACCGCAGGG TTCGGGGCGG TGGGTGCCGG  
 50 3651 CGCTACGGCG GAGGAACTC GTCGAATGTT GCATAGAGCC TTTGATACTC  
 3701 TAGCATGA

5 **Figure 5T DNA and amino acid sequence list**

**SEQ.ID.NO. 10** Amino acid sequence of DNA polymerase for HSV1-DJL-M1

1 MFSGGGGPLS PGGKSAARAA SGFFAPAGPR GAGRGPPPCL RQNFYNPYLA  
10 51 PVGTQQKPTG PTQRHTYYSE CDEFRFIAPR VLDEDAPPEK RAGVHDGHLK  
101 RAPKVYCGGD ERDVLRVGSG GFWPRRSRLW GGVDHAPAGF NPTVTVFHVY  
15 151 DILENVEHAY GMRAAQFHAR FMDAITPTGT VITLLGLTPE GHRVAVHVY  
201 TRQYFYMNKE EVDRHLQCRA PRDLCERMAA ALRESPGASF RGISADHFEA  
251 EVVERTDVYY YETRPALFYR VYVRSGRVLS YLCDNFCPAI KKYEGGVDAT  
20 301 TRFILDNPGF VTFGWYRLKP GRNNTLAQPR APMAFGTSSD VEFNCTADNL  
351 AIEGGMSDLP AYKLMCFDIE CKAGGEDELA FPVAGHPEDL VIQISCLLYD  
401 LSTTALEHVL LFSLGSCDLP ESHLNELAAR GLPTPVVLEF DSEFEMLLAF  
25 451 MTLVKQYGPE FVTGYNIINF DWPFLAKLT DIYKVPLDGY GRMNGRGVFR  
501 VWDIGQSHFQ KRSKIKVNGM VNIDMYGIIT DKIKLSSYKL NAVAEAVLKD  
30 551 KKKDLSYRDI PTYYAAGPAQ RGVIGEYCIQ DSSLVGQLFF KFLPHLELSA  
601 VARLAGINIT RTIYDGQQIR VFTCLRLAD QKGFILPDTQ GRFRGAGGEA  
651 PKRPAAARED EERPEEEGED ENEREEGGGE REPEGARETA GRHVGYQGAR  
35 701 VLDPTSGFHV NPVVVFDFAS LYPSIIQAHN LCFSTLSLRA DAVAHLEAGK  
751 DYLEIEVGGR RLFFVKAHVR ESLLSILLRD WLAMRKQIRS RIPQSSPEEA  
40 801 VLLDKQQA AI KVCNSVYGF TGAQHGLLPC LHVAATVTTI GREMLLATRE  
851 YVHARWAAFE QLLADFPEAA DMRAPGPYSM RIYGD TDSI FVLCRGLTAA  
901 GLTAVGDKMA SHISRALFLP PIKLECEKTF TKLLLIAKKK YIGVIYGGKM  
45 951 LIKGVDLVRK NNCAFINRTS RALVDLLFYD DTVSGAAAAL AERPAAEWLA  
1001 RPLPEGLQAF GAVLVDAHRR ITDPERDIQD FVLTAELSRH PRAYTNKRLA  


---

50 1051 HLTVYYKLMA RRAQVPSIKD RPYVIVAQT REVEETVARL AALRELDAAA  
1101 PGDEPAPPAA LPSPAKRPRE TPSPADPPGG ASKPRKLLVS ELAEDPAYAI  
1151 AHGVALNTDY YFSHLLGAAC VTFKALFGNN AKITESLLKR FIPEVWHPPD  
55 1201 DVAARLRTAG FGAVGAGATA EETRRMLHRA FDTLA\*

5 **Figure 5U DNA and amino acid sequence list**

**SEQ.ID.NO. 11** DNA sequence of DNA polymerase gene for HCMV-AD169-M1

```

10   1 ATGTTTTTCA ACCCGTATCT GAGCGGCGGC GTGACCGGCG GTGCGGTGCG
    51 GGGTGGCCGG CGTCAGCGTT CGCAGCCCGG CTCCGCGCAG GGCTCGGGCA
    101 AGCGGCCGCC ACAGAAACAG TTTTTCAGA TCGTGCCGCG AGGTGTCATG
15   151 TTCGACGGTC AGACGGGGTT GATCAAGCAT AAGACGGGAC GGCTGCCTCT
    201 CATGTTCTAT CGAGAGATTA AACATTGTT GAGTCATGAC ATGGTTTGGC
    251 CGTGTCTTG GCGCGAGACC CTGGTGGGTC GCGTGGTGGG ACCTATTCGT
    301 TTTCACACCT ACGATCAGAC GGACGCCGTG CTCTTCTTCG ACTCGCCCGA
    351 AAACGTGTCG CCGCGCTATC GTCAGCATCT GGTGCCTTCG GGGAACGTGT
25   401 TCGGTTTCTT CGGGGCCACA GAACACGGCT ACAGTATCTG CGTCAACGTT
    451 TTCGGGCAGC GCAGCTACTT TTA CTGTGAG TACAGCGACA CCGATAGGCT
    501 GCGTGAGGTC ATTGCCAGCG TGGGCGAACT AGTGCCCGAA CCGCGGACGC
    551 CATA CGCCGT GTCTGTCACG CCGGCCACCA AGACCTCCAT CTATGGGTAC
    601 GGGACGCGAC CCGTGCCCGA TTG CAGTGT GTGTCTATCA GCAACTGGAC
35   651 CATGGCCAGA AAAATCGGCG AGTATCTGCT GGAGCAGGGT TTTCCCGTGT
    701 ACGAGGTCCG TGTGGATCCG CTGACGCGTT TGGTCATCGA TCGGCGGATC
    751 ACCACGTTCG GCTGGTGCTC CGTGAATCGT TACGACTGGC GGCAGCAGGG
    801 TCGCGCGTCG ACTTGTGATA TCGAGGTAGA CTGCGATGTC TCTGACCTGG
    851 TGGCTGTGCC CGACGACAGC TCGTGGCCGC GCTATCGATG CCTGTCCTTC
45   901 GATATCGAGT GCATGAGCGG CGAGGGTGGT TTTCCCTGCG CCGAGAAGTC
    951 CGATGACATT GTCATT CAGA TCTCGT GCGT GTGCTACGAG ACGGGGGGAA
50  1001 ACACCGCCGT GGATCAGGGG ATCCCAAACG GGAACGATGG TCGGGGCTGC
    1051 ACTTCGGAGG GTGTGATCTT TGGGCACTCG GGTCTTCATC TCTTTACGAT
    1101 CGGCACCTGC GGGCAGGTGG GCCCAGACGT GGACGTCTAC GAGTTCCTT
55  1151 CCGAATACGA GCTGCTGCTG GGCTTTATGC TTTTCTTCA ACGGTACGCG
    1201 CCGGCCTTTG TGACCGGTTA CAACATCAAC TCTTTTGACT TGAAGTACAT
60

```

5 **Figure 5V DNA and amino acid sequence list**

1251 CCTCACGCGT CTCGAGTACC TGTATAAGGT GGACTCGCAG CGCTTCTGCA  
 10 1301 AGTTGCCTAC GGCGCAGGGC GGCCGTTTCT TTTTACACAG CCCCGCCGTG  
 1351 GGTTTTAAGC GGCAGTACGC CGCCGCTTTT CCCTCGGCTT CTCACAACAA  
 1401 TCCGGCCAGC ACGGCCGCCA CCAAGGTGTA TATTGCGGGT TCGGTGGTTA  
 15 1451 TCGACATGTA CCCTGTATGC ATGGCCAAGA CTAAC TCGCC CAACTATAAG  
 1501 CTCAACACTA TGGCCGAGCT TTACCTGCGG CAACGCAAGG ATGACCTGTC  
 20 1551 TTACAAGGAC ATCCCGCGTT GTTTCGTGGC TAATGCCGAG GGCCGCGCCC  
 1601 AGGTAGGCCG TTAGTGTCTG CAGGACGCCG TATTGGTGCG CGATCTGTTC  
 1651 AACACCATTA ATTTTCACTA CGAGGCCGGG GCCATCGCGC GGCTGGCTAA  
 25 1701 AATTCCGTTG CGGCGTGTCA TCTTTGACGG ACAGCAGATC CGTATCTACA  
 1751 CCTCGCTGCT GGACGAGTGC GCCTGCCGCG ATTTTATCCT GCCCAACCAC  
 30 1801 TACAGCAAAG GTACGACGGT GCCCGAAACG AATAGCGTTG CTGTGTCACC  
 1851 TAACGCTGCT ATCATCTCTA CCGCCGCTGT GCCCGGCGAC GCGGGTTCTG  
 1901 TGGCGGCTAT GTTTCAGATG TCGCCGCCCT TGCAATCTGC GCCGTCCAGT  
 35 1951 CAGGACGGCG TTTCACCCGG CTCCGGCAGT AACAGTAGTA GCAGCGTCGG  
 2001 CGTTTTTCAGC GTCGGCTCCG GCAGTAGTGG CGGCGTCGGC GTTCCAACG  
 40 2051 ACAATCACGG CGCCGGCGGT ACTGCGGCGG TTTCGTACCA GGGCGCCACG  
 2101 GTGTTTGAGC CCGAGGTGGG TTAGTACAAC GACCCCGTGG CCGTGTTTGA  
 2151 CTTTGCCAGC CTCTACCCTT CCATCATCAT GGCCCACAAC CTCTGCTACT  
 45 2201 CCACCCTGCT GGTGCCGGGT GGCGAGTACC CTGTGGACCC CGCCGACGTA  
 2251 TACAGCGTCA CGCTAGAGAA CGGCGTGACC CACCGCTTTG TCGTGCTTC  
 50 2301 GGTGCGCGTC TCGGTGCTCT CGGAAGTGT CAACAAGTGG GTTTCGCAGC  
 2351 GGCGTGCCGT GCGCGAATGC ATGCGCGAGT GTCAAGACCC TGTGCGCCGT  
 2401 ATGCTGCTCG ACAAGGAACA GATGGCGCTC AAAGTAACGT GCAACGCTTT  
 55 2451 CTACGGTTTT ACCGGCGCGC TGAACGGTAT GATGCCGTGT CTGCCCATCG  
 2501 CCGCCAGCAT CACGCGCATC GGTCGCGACA TGCTAGAGCG CACGGCGCGG

5

**Figure 5W DNA and amin acid sequence list**

10 2551 TTCATCAAAG ACAACTTTTC AGAGCCGTGT TTTTGCACA ATTTTTTTAA  
 2601 TCAGGAAGAC TATGTAGTGG GAACGCGGGA GGGGGATTCG GAGGAGAGCA  
 2651 GCGCGTTACC GGAGGGGCTC GAAACATCGT CAGGGGGCTC GAACGAACGG  
 15 2701 CGGGTGGAGG CGCGGGTCAT CTACGGGGAC ACGGACAGCG TGTTTGTCCG  
 2751 CTTTCGTGGC CTGACGCCGC AGGCTCTGGT GGCGCGTGGG CCCAGCCTGG  
 20 2801 CGCACTACGT GACGGCCTGT CTTTTTGTGG AGCCCGTCAA GCTGGAGTTT  
 2851 GAAAAGGTCT TCGTCTCTCT TATGATGATC TGCAAGAAAC GTTACATCGG  
 2901 CAAAGTGGAG GGCGCCTCGG GTCTGAGCAT GAAGGGCGTG GATCTGGTGC  
 25 2951 GCAAGACGGC CTGCGAGTTC GTCAAGGGCG TCACGCGTGA CGTCCTCTCG  
 3001 CTGCTCTTTG AGGATCGCGA GGTCTCGGAA GCAGCCGTGC GCCTGTCCG  
 30 3051 CCTCTCACTC GATGAAGTCA AGAAGTACGG CGTGCCACGC GGTTCCTGGC  
 3101 GTATCTTACG CCGCTTGGTG CAGGCCCGCG ACGATCTGTA CCTGCACCGT  
 3151 GTGCGTGTCG AGGACCTGGT GCTTTCGTCTG GTGCTCTCTA AGGACATCTC  
 35 3201 GCTGTACCGT CAATCTAACC TGCCGCACAT TGCCGTCATT AAGCGATTGG  
 3251 CGGCCCGTTC TGAGGAGCTA CCCTCGGTCTG GGGATCGGGT CTTTACGTT  
 40 3301 CTGACGGCGC CCGGTGTCCG GACGGCGCOG CAGGGTTCCT CCGACAACGG  
 3351 TGATTCTGTA ACCGCCGGCG TGGTTTCCCG GTCGGACGCG ATTGATGGCA  
 3401 CGGACGACGA CGCTGACGGC GGCGGGGTAG AGGAGAGCAA CAGGAGAGGA  
 45 3451 GGAGAGCCGG CAAAGAAGAG GGCGCGGAAA CCACCGTCGG CCGTGTGCAA  
 3501 CTACGAGGTA GCCGAAGATC CGAGCTACGT GCGCGAGCAC GGCGTGCCCA  
 50 3551 TTCACGCCGA CAAGTACTTT GAGCAGGTTC TCAAGGCTGT AACTAACGTG  
 3601 CTGTCGCCCC TCTTCCCGG CGGCGAAACC GCGCGCAAGG ACAAGTTTTT  
 3651 GCACATGGTG CTGCCGCGGC GCTTGCACTT GGAGCCGGCT TTTCTGCCGT  
 55 3701 ACAGTGTCAA GGCGCACGAA TGCTGTTGA

5 **Figure 5X DNA and amino acid sequence list****SEQ.ID.NO.12 Amino acid sequence of DNA polymerase f r HCMV-AD169-M1**

10      1 MFFNPYLSGG VTGGAVAGGR RQRSQPGSAQ GSGKRPPQKQ FLQIVPRGVM  
       51 FDGQTGLIKH KTGRLPLMFY REIKHLLSHD MVWPCPWRET LVGRVVGPIR  
       101 FHTYDQTDV LFFDSPENV S PRYRQHLVPS GNVLRFFGAT EHGYSICNVV  
 15      151 FGQRSYFYCE YSDTDLREV IASVGELVPE PRTPYAVSVT PATKTSIYGY  
       201 GTRPVFDLQC VSI SNWTMAR KIGEYLL EQG FPVYEV RVDP LTRLVIDRRI  
       251 TTFGWCSVNR YDWRQQGRAS TCDIEVDCDV SDLVAVPDDS SWPRYRCLSF  
       301 DIECMSGEGG FPCA EKSDDI VIQISCVCYE TGGNTAVDQG IPNGNDGRGC  
       351 TSEGVIFGHS GLHLFTIGTC GQVGPDVDVY EFPSEYELL GFMLFFQRYA  
 25      401 PAFVTGYNIN SFDLKYILTR LEYLYKVDSQ RFCKLPTAQG GRFFLHSPAV  
       451 GFKRQYAAAF PSASHNNPAS TAATKVYIAG SVVIDMYPVC MAKTNSPNYK  
       501 LNTMAELYLR QRKDDLSYKD IPRCFVANAE GRAQVGRYCL QDAVLVRDLF  
       551 NTINFHYEAG AIARLAKIPL RRVIFDGQOI RIYTSLLDEC ACRDFILPNH  
       601 YSKGTTVPET NSVAVSPNAA IISTA AVPGD AGSVAAMFQM SPPLQSAPSS  
 35      651 QDGVSPGSGS NSSSSVGVFS VSGSGSSGGVG VSNDNHGAGG TAAVSYQGAT  
       701 VFEPEVGYYN DPVAVDFDAS LYP SIIMAHN LCYSTLLVPG GEYPVDPADV  
       751 YSVTLENGVT HRFVRASVRV SVLSELLNKW VSQRRVREC MRECQDPVRR  
       801 MLLDKEQMAL KVT CNAFYGF T GALNGMMPC LPIAASITRI GRDMLERTAR  
       851 FIKDNFSEPC FLHNFFNQED YVVG TREGDS EESSALPEGL ETSSGGSNER  
 45      901 RVEARVIYGD TDSVFVRFRG LTPQALVARG PSLAHYVTAC LFVEPVKLEF  
       951 EKVFVSLMMI CKKRYIGKVE GASGLSMKGV DLVRKTACEF VKGVTRDVL S  


---

 50      1001 L LFEDREVSE AAVRLSRLSL DEVKKG VPR GFWRILRRLV QARDDLYLHR  
       1051 VRVEDLV LSS VLSKDISLYR QSNLPHIAVI KRLAARSEEL PSVGDRVFYV  
       1101 LTAPGVRTAP QGSSDNGDSV TAGVVSRSDA IDGTDDDADG GGVEESNRRG  
 55      1151 GEPAKKRARK PPSAVCNYEV AEDPSYVREH GVPIHADKYF EQVLKAVTNV  
       1201 LSPVFPGGET ARKDKFLHMV LPRRLHLEPA FLPYSVKAHE CC\*